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Interdisciplinary studies in social sciences – unmasking truths whilst nurturing new possibilities

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Chief Editor's message

The "Journal of Education, Innovation, and Communication (JEICOM)" is a fully double blind-reviewed, open-access journal, without any costs related to publication charged to the author, the reader or the institutions/universities. Additionally, the intellectual property rights of a paper always remain with its author.

JEICOM's scope is to provide a free and open platform to academics, researchers, professionals, and postgraduate students to communicate and share knowledge in the form of quality empirical and theoretical research that is of high interest not only for academic readers but also for practitioners and professionals.

JEICOM welcomes theoretical, conceptual and empirical original research papers, case studies, book reviews that demonstrate the innovative, international and dynamic spirit for the education and communication sciences, from researchers, scholars, educators, policy-makers, and practitioners in education, communication, and related fields. Articles that show scholarly depth, breadth or richness of different aspects of social pedagogy are particularly welcome.

The numerous papers presented every year during the conferences organized by our Institute, the Communication Institute of Greece, enables us and our editorial board, to have access to a plethora of papers submitted. Nevertheless exceptional papers can be submitted by other scholars as well; who can follow the journals submission guidelines (see at https://coming.gr/journal-of-education-innovation-and-communication-jeicom/).

Following a rigorous double peer-reviewed process, only a selection of the papers submitted, is published twice a year. At this point we would like to thank our Editorial Team for their availability and extremely constructive comments throughout the blind review process. Their valuable hard work assists and enables the authors to provide articles of quality for the rest of the academic community, among others. Additionally we would like to acknowledge the contribution of Dr Robert J. Bonk for his help in this issue. We would not omit to thank all the authors that submitted articles to JEICOM. Receiving a review that can improve an

article, no matter whether the article is actually accepted or not, is a blessing for the author but also for the editors.

The current issue, that is the sixth as a total and the first for 2021 (June 2021), is entitled *Interdisciplinary studies in social sciences – unmasking truths whilst nurturing new possibilities*.

Dr Margarita K. Kefalaki and *Dr Fotini Diamantidaki*

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Preface

Interdisciplinary studies in social sciences – unmasking truths whilst nurturing new possibilities

Dr Fotini Diamantidaki[1]

Dr Margarita Kefalaki[2]

Covid - 19 has undeniable brought challenges for everyone involved around the world, which has led to extremes, but also towards innovation opportunities. Human nature shrivels under pressure, but also finds ways to adapt and recreate a new normal. The term of the 'new normal' was initially used to caution the belief of economists that industrial economies would revert to normal after the recession (El-Erian, 2010, cited in Cahapay, 2020). This phrase has since been used a lot and in different contexts and in general terms means that something which was previously not typical became typical (Cahapay, 2020). The impact of the COVID-19 pandemic on people's social wellbeing has a lot to do with the way they communicate, that now happens in most cases remotely (Nguyen *et al.*, 2020).

Our starting point with this issue is to observe communication traditionally speaking, within cultural contexts about certain nation-cultures that possibly many will contest. Peter Broeder in his article '*Informed Communication in High Context and Low Context Cultures*', discusses the highly contested distinction of High and Low Culture to determine whether this characterisation affects some facets of culture-specific communication styles, that is, preferences in the use of context and information for constructing meaning in communication. A large-scale study with data collected from 774 participants, representing three ethnically identified cultural groups—Dutch, Greek, and Japanese—the subjects completed an online survey where they reflected on the way in which they think they communicate. The results reveal some clear differences between the cultural groups in their reported communication style. The Dutch used relatively more non-verbal communication; the Greeks used more hand gestures, and the Japanese were more indirect in their communication. A cultural divergence emerged, in that, the Greeks living in the Netherlands reported higher levels of non-verbal communication, were more indirect, and used more metaphors than did the Greeks living in Greece.

Whilst the first article discusses some of the communication styles in certain communities, we wonder whether the way we communicate is entirely altered or 'masked' as a result of the

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pandemic and whether we are all still communicating in the same way, using gestures with verbal and nonverbal cues, regardless of which community, national or hybrid identity we think we belong to. An element, that in our opinion has significantly impacted on the way we communicate is the use of masks in our daily lives. What does the mask add to our communication possibilities and whether it destroys them remains to be seen, as we hopefully start to emerge from a global pandemic. Do we create new ways of communication and add or remove meaning to our social existences, as a result of wearing the masks, or do we, as human beings are forced to recreate a new masked reality and identity, an extension of ourselves with masks on?

Margarita Kefalaki in her article '*Masks as part of our Novel Identity: Creation of Meaning within a Time of Global Pandemic*' argues that masks have become a personal and social identity tool. She suggests that the mask is now part of our face, covering its lower part, hiding our facial expressions. The paper examines the place and use of masks as markers of personal and social identities and an interpretation of social responsibility. It presents the symbolic meaning of masks as an anthropological artifact, the dilemma of individual liberty challenged by social responsibility and the way we can create meaning through adaptation to a new "masked reality". The article adapts the social identity theory (SIT) that presupposes that one part of the self-concept is defined by our belonging to social groups (Trepte, 2006).

Speaking of the need to belong to a group and be recognised, one could argue how far one individual would go to indeed be favoured and recognised. Jürgen Rudolph and co-authors, in their article '*Anti-facemaskism—Politicisation of Face Masks during COVID-19 in the Context of Trump's Plutocratic Populism*' discuss Donald Trump's' Presidency and argue it may be best remembered because of its populist, anti-scientific, and denialist approach towards the pandemic. After providing a brief literature review that focuses on the academic literature on face masks, the article shows that Trump's absurd responses to the pandemic were not unique amongst populists worldwide. Based on a qualitative analysis of Trump's numerous false and misleading statements about COVID-19, the article aims to reconstruct Trump's coronavirus and facemask responses that contributed to the U.S. having the highest coronavirus death toll worldwide. The article concludes by highlighting the importance of teaching critical thinking and the careful evaluation of the trustworthiness of sources to avoid falling for fake news and populist propaganda.

Teaching critical thinking is indeed key, to avoid falling for fake news and populist propaganda, that prevails in today's new world. However, not all is lost. Moving forward, there are good examples of critical thinking which successfully demonstrate how even very practical subjects can adapt to a 'new normal'. M. A. Gunasekara Thathsara D. Maddumapatabandi and Kelum A. A. Gamage add an element of hope and creativity with their article '*Remote Lab Activities in a Digital Age: Insights into Current Practices and Future Potentials*'. They demonstrate successfully how current practices in laboratories change and adapt to a remote environment as a result.

Laboratories and practical workshops are a crucial element in science, technology, engineering, and mathematics (STEM) subject streams in higher education, where the COVID-19 pandemic has created an unprecedented challenge in conducting such activities

face-to-face. Many universities in the western world are now experimenting with various platforms to conduct laboratory activities remotely, in conjunction with online delivery of teaching. It demands significant adjustment to traditional face-to-face laboratory activities, where this paper investigates the practices universities currently adapted and potential future technologies available for remote delivery of laboratories. This paper also identifies the areas for enhancement of students' remote laboratory experience, and a survey was also conducted to identify students' perception of laboratory activities during online and hybrid delivery of teaching. The research study explored current practices of remote lab delivery and also provide an insight into the future potentials of remote lab activities in a digital age.

In the spirit of innovation and applied critical thinking Orr Levental & Hadas Brodie Schroeder discuss a project '*From the sports field to the classroom: The social role of an elite sports team in the periphery*'. In their study they argue that sports teams can play an essential role in conveying educational and societal values to teenage high school students. More specifically, they examined the ability of a successful local soccer team to motivate high school students to improve their academic achievements and behavior. This research used interviews and focus groups with educators from two peripheral towns, one Arab and one Jewish. The texts were qualitatively open coded and constructed into major themes. They found that soccer teams with an educational and societal agenda and solid cooperation with the local schools, would influence students to improve their academic achievements and behavior.

We finish off our suite of interdisciplinary articles for this issue, with a classic yet diachronic message from Susan Kelly Archer & David Esser, that the most important factor linked to success is personal motivation related to learning. Isn't this something that we can all relate to? In their article, '*Organizational Design of Secondary Aviation / Aerospace / Engineering Career Education Programs*', they aimed to identify and evaluate the underlying organizational factors of successful secondary aviation/aerospace/engineering career education programs, through application of measures traditionally associated with organizational theory. Analysis methods included factor analysis, structural equation modelling, and a review of study participants' comments to identify emerging themes for triangulation with the statistical analysis results. Participants in the study comprised aviation/aerospace/engineering career education stakeholders. Hypothesis testing results indeed suggested that the most important factor in predicting success for an aviation/aerospace/engineering program is personal motivation related to learning. Though other underlying factors, including leadership/collaborative environment, organizational accountability, and resource availability were clearly related to perceived program success, these relationships appeared to be indirect. The paired qualitative analysis of participant comments generated themes that transcended survey item topics. Personal motivation was the most commonly recurring theme in comments, supporting the hypothesis testing result indicating its predictive strength for an organization's success.

Finally, the book review presented by Jürgen Rudolph of Peter Fleming's most recent book, *Dark academia. How universities die* (2021), captures many of the challenges of the

neoliberalist era we all live in. Truths are indeed unmasked about the transformed nature of Universities and its academics, and the ongoing pressures faced within universities walls.

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Informed Communication in High Context and Low Context Cultures

Peter Broeder [3]

ABSTRACT

In a variety of cross-cultural studies, comparisons are attached to Hall's (1976) notion of contexting. A commonly accepted distinction is made between high-context and low-context cultures. The purpose of this study was to determine whether this characterisation affects some facets of culture-specific communication styles, that is, preferences in the use of context and information for constructing meaning in communication. Specifically, data were collected from 774 subjects so that a comparison could be made. Representing three ethnically identified cultural groups—Dutch, Greek, and Japanese—the subjects completed an online survey where they reflected on the way in which they think they communicate. The results reveal some clear differences between the cultural groups in their reported communication style. The Dutch used relatively more non-verbal communication; the Greeks used more hand gestures, and the Japanese were more indirect in their communication. A cultural divergence emerged, in that, the Greeks living in the Netherlands reported higher levels of non-verbal communication, were more indirect, and used more metaphors than did the Greeks living in Greece.

***Keywords**:* Communication style, Cross-cultural, Hall, Low context, High context.

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1 INTRODUCTION

The fast-growing globalization implies more intercultural contacts. This makes awareness of cultural differences more important for successful communication. It is a reasonable conjecture that the new reality of globalization has affected culture-specific communication styles. In cross-cultural studies, Hall's (1976) contexting theory is quite influential, and quite often more or less successfully applied (McSweeney, 2015). The idea is that the use of context to infuse information and meaning into communication varies across cultures. Therefore, cultures can be characterised as primarily low- or high-context cultures. The basic research aim of this study is to find out whether and to what extent Hall's context model distinguishes the communication styles of ethnically defined cultural groups. More specifically, do members of low-/high-context cultures differ in the way they use context in conveying information through communication. The paper is structured as follows. First, the important points of Hall's (1976) context theory are clarified and some limitations are pointed out. Then a detailed account is given of the method of an empirical investigation into cross-cultural communication styles. To this end, the findings are given of an online survey with participants representing a high-context culture (Japan), a medium-context culture (Greece) or a low-context culture (the Netherlands). The paper ends by offering some suggestions for further research.

2 THEORETICAL FRAMEWORK

In Hall's (1976) cross-cultural contexting theory, the message in the communication environment of a high context culture is "one in which most of the information is either in the physical context or internalized in the person, while very little is in the coded, explicit, transmitted part of the message" (Hall, 1976, p. 91). Asian cultures usually prefer high context messages. Establishing the message's meaning is the minor (needed) activation of the context that consists of pre-programmed, culture-specific cues. The members of these cultural groups are used to implicit and indirect messages with visual associations. In contrast, in the communication environment of a low context culture, "the mass of the information is vested in the explicit code" (Hall, 1976, p. 91). The members of these cultural groups are used to direct and explicit messages (visually and verbally). Western cultures usually prefer low context messages, and information is expressed largely through words. Hall's conceptualising of contexting was instanced by a limited list of countries, composing a continuum from primarily high-context cultures towards primarily low-context cultures. The country classification most commonly used is given in Figure 1.

High-Context Cultures

Japan
China
Arabic Countries
Greece
Spain
Italy
England
France
North America
Scandinavian Countries
German-speaking Countries

Low-Context Cultures

Figure 1: Country Classification based on Corresponding High-/Low-Context Cultures (Initial source: Hall, 1976, Hall & Hall, 1990, updated by several follow-up studies)

The high-/low-context distinction theory of Hall (1976) has been utilized extensively and more or less successfully applied in a wide variety of cross-cultural investigations. For all that, several reviews and systematic meta-analyses (Hermeking, 2006; Würtz, 2006; Cardon, 2008; Warner-Søderholm, 2013; Usunier and Roulin, 2010; Kittler, Rygl, and Mackinnon, 2011; Alexander, 2019; Heimgärtner, 2019; Yama and Zakaria, 2019) noted several limitations. Some of them are as follows:

- Hall (1976) and follow-up provided only anecdotical evidence for the context model and the ranking of countries, with no explanation of the qualitative method used.
- Empirical cross-cultural (quantitative) examinations of contexting information were very scarce.
- Very few studies attempted to construct valid scales for measuring differences in contexting information use across cultures.
- The high-/low-context characterization of cultures results in a classification of countries (as in Figure 1) and (static) national cultures.
- Blended and often diverging findings illustrate the arbitrariness of the commonly used country classification.

The aim of the present study is to address some of these limitations. It is a quantitative empirical investigation of Hall's (1976) theory focussing on communication styles across cultures. The central research question for this study is whether and to what extent Hall's contexting theory and the cultural country classification attached to it can be supported empirically. In addition, instead of a selection of cultural groups based on country or national culture, cultural groups are distinguished through ethnic self-identification. Derived from Hall's country classification, given in Figure 1, a comparison is made of at the one end, the Japanese group as the most typically high context culture and, at the other end, the Dutch

group (more comparable with German-speaking Countries) as the most typically low-context culture. In addition, the Greek group is included in the comparison as a middle-context culture.

Hall's cultural paradigm is related to Hofstede's (2001) model of national culture (among others, replicated by Minkow & Kaasa, 2020). Specifically, the cultural dimension individualism–collectivism coincides with the low-/high-context distinction. In collectivistic (high-context) cultures, information is exchanged more implicitly, more visual, and with much non-verbal coding between groups, with less need for explicit communication than in individualistic (low-context) cultures. According to Hofstede (2020), the Netherlands has a highly individualistic culture (score 80 on a 0-100 scale). Japan has a moderately collectivistic culture (score 46). Greece has a highly collectivistic culture (scores 35). On the basis of combining the theories of Hall and Hofstede, the following hypothesis is formulated:

Hypothesis 1: Communication style is influenced by the use of context of a message, differentiated by culturally specific individualism/collectivism.

3 METHOD

3.1 Sample

Data were collected through an online survey with convenient sampling. The questionnaire was in English. In total, the sample consisted of 774 participants, 425 participants were from the Netherlands, 203 participants from Japan, and 146 participants from Greece. Table 1 shows the country-of-birth and the country-of-living of the sample. Their cultural background was checked with the following self-identification question: "To what ethnic group do you belong?".

Table 1: Country of Birth and Living per Ethnic Group

Ethnic group	Dutch (*N* = 425)		Japanese (*N* = 203)		Greek (*N* = 146)	
	Netherlands	Other	Japan	Other	Greece	Other
Country-of-birth	425 (100%)	-	197 (97%)	6 (3%)	137 (94%)	9 (6%)
Country-of-living	425 (100%)	-	157 (77%)	46 (23%)	84 (58%)	62 (42%)

The sample consisted of 264 men and 510 women. The mean age was 27.80 years (Age range: 18-59 years). The education level was mostly middle/higher education or higher. More specific demographic information of the sample is given in Table 2.

Table 2: Demographic Information per Ethnic Group

Ethnic group	Dutch (*N* = 425)	Japanese (*N* = 203)	Greek (*N* = 146)
Gender			
Male	102 (24%)	101 (50%)	61 (42%)
Female	323 (76%)	102 (50%)	85 (58%)
Age			
18–29	333 (78%)	154 (76%)	69 (47%)
30–39	10 (3%)	30 (15%)	51 (35%)
40–60	82 (19%)	19 (9%)	26 (18%)
Education			
High school	56 (13%)	29 (14%)	17 (12%)
Middle/Higher education	181 (43%)	15 (7%)	15 (10%)
University	188 (44%)	159 (78%)	1148%)

3.2 Questionnaire

The respondents participated in the study through an online questionnaire link provided. First, they gave their informed consent and some demographic information. Then they were asked to reflect on their communication style and information preferences through the following five statements (Answers were given on a 5-point scale, "Completely (dis)agree"):

- Non-verbal communication: "I generally use a lot of non-verbal communication when I communicate".
- Hand gestures: "I generally use a lot of hand gestures when I talk to someone".
- Indirect communication: "I generally try to convey information as directly as possible".
- Metaphors: "I generally use many metaphors when I talk to someone".
- Visual preference: "In general, I prefer visual information instead of textual information".

A statistical reliability analysis showed that the five items could not be integrated into a whole scale for measuring communication style. The internal consistency was poor with Cronbach's α = .414. Removing separate items did not imply an improvement. Therefore, these faces of communication style were analysed separately.

4 RESULTS

A one-way between-groups MANOVA was performed to investigate differences in communication style. The dependent variables were: non-verbal communication, use of hand gestures, indirect communication, use of metaphors, and visual preference. The independent variable was the cultural group. Age was entered as a co-variate. There was a statistically significant difference between the three groups on the combined dependent variables, F (10, 1534) = 12.971, $p < .001$; Pillai's Trace = .156, partial eta squared = .08. However, separate univariate tests on the outcome variables, using a Bonferroni adjusted alpha level of .017, revealed non-significant culture effects on the preference for visual information (instead of textual information), F (2, 773) = 0.455 $p < .635$. These differences were unravelled further through an inspection of the mean scores. The results of these analyses are now discussed for each facet of cultural contexting separately. The error bars in Figures 2–6 display 95% confidence intervals. The degree to which the end-to-end of the error-bars touch or moderately overlap shows the significant differences between the groups (cf. Cumming & Finch, 2005).

First, the means for the use of a lot of non-verbal communication per ethnic group are plotted in Figure 2. The Dutch group reported significantly higher levels of non-verbal communication (M_{Dut} = 3.81, SD_{Dut} = 0.83) than the Greek group (M_{Gre} = 3.45, SD_{Gre} = 0.92) and the Japanese group (M_{Jap} = 3.44, SD_{Jap} = 0.98), F(2, 770) = 15.30, $p < .001$. The latter two groups did not differ significantly in this respect.

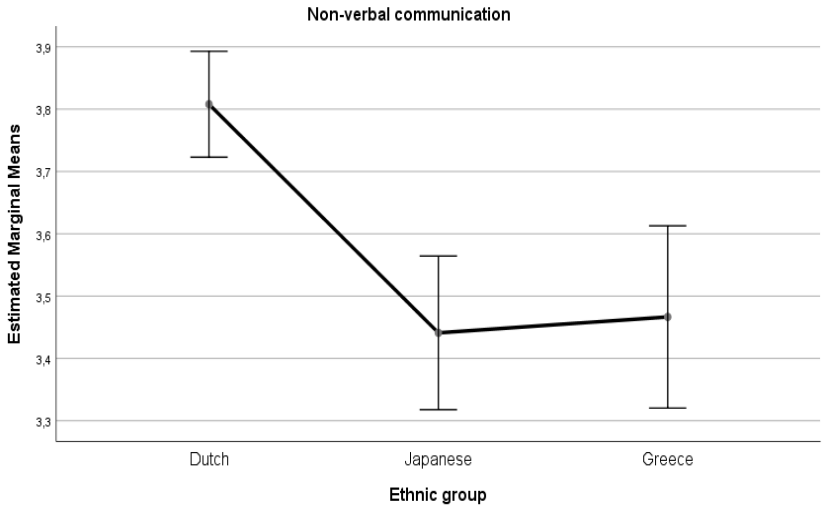

Figure 2: Non-Verbal Communication per Ethnic Group (Means on a 5-point-scale, Min. = 1 and Max. = 5, Error Bars: 95% CI)

In Figure 3, the use of hand gestures when talking to someone is summarized per ethnic group. For the Greek group a higher level of using gestures emerged (M_{Gre} = 3.87, SD_{Gre} = 0.97) compared to the Dutch group (M_{Dut} = 3.53, SD_{Dut} = 0.97) and the Japanese group (M_{Jap} = 3.41, SD_{Jap} = 0.10), $F(2, 770) = 10.97$, $p < .001$. The communication style of the latter two groups did not differ significantly in this respect.

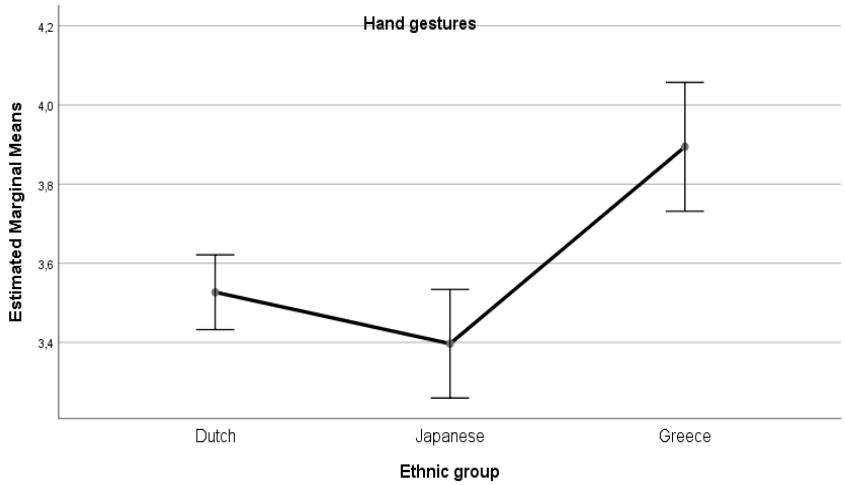

Figure 3: Use of hand gestures per ethnic group (Means on a 5-point-scale, Min. = 1 and Max. = 5, Error bars: 95% CI)

The groups also differed in the attempt to convey information as directly as possible. Figure 4 shows the degree of indirect communication. The Japanese group reported the highest level of trying to convey information not directly (M_{Jap} = 2.55, SD_{Jap} = 0.88) in comparison with the two other groups. $F(2, 770) = 20.46$, $p < .001$. The communication style of the Dutch group (M_{Dut} = 2.16, SD_{Dut} = 0.75) and the Greek group (M_{Gre} = 2.09, SD_{Gre} = 0.74) did not differ significantly in this respect.

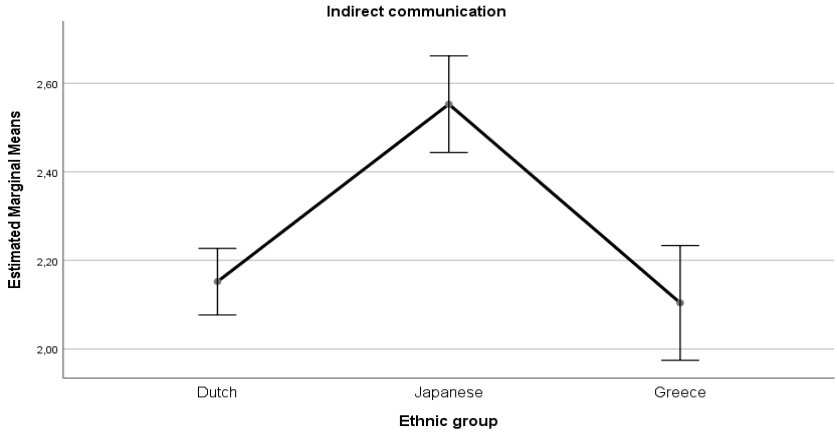

Figure 4: Indirect Communication per Ethnic Group (Means on a 5-point-scale, Min. = 1 and Max. = 5, Error Bars: 95% CI)

Figure 5 shows the degree to which the groups reported using metaphors when talking to someone. There was no statistically significant difference between the Japanese group (M_{Jap} = 3.36, SD_{Jap} = 0.98) and the Greek group (M_{Gre} = 3.24, SD_{Gre} = 1.02). Additionally, both groups had higher levels of using metaphors in comparison with the Dutch group. (M_{Dut} = 3.08, SD_{Dut} = 1.01), $F(2, 770) = 5.87$, $p = .003$.

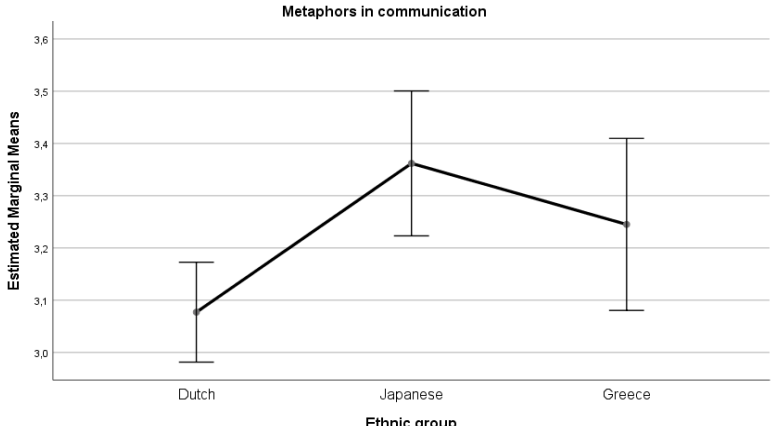

Figure 5: Use of Metaphors per Ethnic Group (Means on a 5-point-scale, Min. = 1 and Max. = 5, Error Bars: 95% CI).

The mean preferences for visual information instead of textual information per ethnic group are plotted in Figure 6. No statistically significant differences between the Dutch group (M_{Dut} = 3.69, SD_{Dut} = 0.86), the Japanese group (M_{Jap} = 3.63, SD_{Jap} = 0.96) and the Greek group (M_{Gre} = 3.71, SD_{Gre} = 0.96) emerged, $F(2, 770) = 0.455$, $p = .635$.

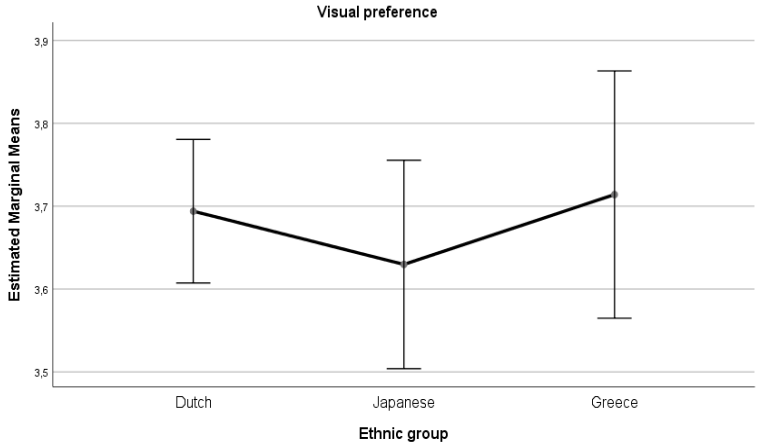

Figure 6: Preference of Visual Information per Ethnic Group (Means on a 5-point-scale, Min. = 1 and Max. = 5, Error Bars: 95% CI)

As was shown in Table 1, the Dutch participants were all living in the Netherlands. Those Japanese participants not living in Japan, were based in a variety of other countries. In contrast, for the Greek participants an interesting comparison could be made. The Greek group consisted of two clearly distinguishable subgroups: those living in Greece (N = 49) and those living in the Netherlands (N = 84). On average, the Greeks living in the Netherlands reported to use more non-verbal information, ($M_{GreeDut}$ = 3.65, $SD_{GreeDut}$ = 0.90) than those in living in Greece (M_{GreGre} = 3.25, SD_{GreGre} = 0.87), t(131) = 2.53, p = .013. This difference represented an effect size of Cohen's d = 0.51. In addition, the analyses showed that the Greeks in the Netherlands tried to convey information more indirectly ($M_{GreeDut}$ = 2.27, $SD_{GreeDut}$ = 0.67) than those living in Greece (M_{GreGre} = 2.01, SD_{GreGre} = 0.72), t(131) = 2.01, p = .047 with an effect size of d = .54. Finally, the Greeks in the Netherlands also used more metaphors when talking to someone ($M_{GreeDut}$ = 3.47, $SD_{GreeDut}$ = 0.77) than the Greeks in Greece (M_{GreGre} = 3.06, SD_{GreGre} = 1.09), t(126.374) = 2.54, p = .012 with an effect size of d = .46. There were no statistically significant differences in the use of hand-gestures and visual preference between the two Greece subgroups

5 CONCLUSION

This study investigated contexting in communication styles across cultures. Hall's contexting theory, and the cultural (country) classification attached to it, was partly supported empirically for Greece, Japan, and the Netherlands. As assumed, communication style was influenced by the cultural specific use of context of a message. The results revealed some remarkable convergence between cultural groups with respect to their reported communication style. The Dutch group reported using relatively more non-verbal communication; the Greek group reported using more hand gestures, and the Japanese group reported relatively more indirectness. Among the three cultural groups, no significant differences were found in the degree to which metaphors were used when someone was talking to another person, and according to the preference of visual information above textual information. Additionally, a cultural divergence emerged, in that, the Greeks living in the

Netherlands reported higher levels of non-verbal communication, were more indirect, and used more metaphors than did the Greeks living in Greece. For the Dutch and Japanese subgroups, there were not enough data to investigate this living-abroad effect on contexting in communication styles.

6 DISCUSSION AND LIMITATIONS

This study is the first of its kind because of the comparison of ethnically self-identified cultural groups. In almost all prior cross-cultural studies, cultural identification of groups is based on the country of residence or that of birth. In this study, the Dutch, Greeks, and Japanese groups were distinguished by the cultural profiles based on country-of-birth, country-of-living, and self-identification criteria. This multiple identification has proven to be a highly valid one for defining cultural groups in Asia (Broeder & Stokmans, 2013), Europe (Broeder & Yagmur, 2012), and South-Africa (Plüddemann et al., 2004). Ethnic identification through self-categorisation, touches the heart of the cultural matter (Broeder & Extra, 1999).

This study has limitations that provide scope for further research. First, the questionnaire was drafted in English, which is not the native language of the Dutch, the Greek, or the Japanese participants. Future studies might provide a precise, reliable translation in the native language to ensure the most accurate responses from them. This is an important point of attention in cross-cultural investigations (discussed by Harzing, 2005). Second, the empirical observations in this study are self-reports. It concerns individual self-reflection by representatives of the Dutch, Greek, and Japanese groups of their own communication style. So, they did not reflect on the communication style of their own cultural group. This relates to the third limitation, which is the operationalisation of the core-construct contexting in communication that is non-verbal, consisting of hand gestures, directness, metaphoric language use, and of visual information preference. Suggested here is to consider facets of communicative competences developed in the functional-linguistic approach to learning and education. The basic idea is that language always has a function according to the social context in which it is used. Specifically, Broeder & Van Wijk (2020) specified five communicative competences and “school language” skills associated with them, that is, linguistic (with lexical and formulating skills), textual (with reading and writing skills), interactional (with receptive and productive skills), rhetorical (with content and presentation skills), and informational (with organization and search skills).

Finally, enhanced ecological validations (within and between cultures) might provide a more concrete insight in what is actually done in culture-specific communication styles. Suggested here is the synergy of quantitative and qualitative (anecdotal) empirical observations. Although Hall’s (1976) context theory is acknowledged and widely used in cross-cultural studies, its distinctions have been criticised as being bipolar, leading to overgeneralisation, or lacking solid empirical evidence (McSweeney, 2015). And indeed, the high/low context distinction might be very protean in its ability to explain patterns in the dynamic reality of cultural localisation and globalisation.

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Masks as part of our Novel Identity: Creation of Meaning within a Time of Global Pandemic

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ABSTRACT

Since the time COVID19 made its appearance on an international level (March 2020), masks have become a personal and social identity tool. Nowadays (June 2021), we cannot still leave our house without wearing a mask. It really feels like the mask is now part of our face, covering its lower part, hiding our facial expressions. In this paper, we examine the place and use of masks as markers of personal and social identities, as well as social responsibility. More particularly, we observe the following three issues: a) the symbolic meaning of masks as an anthropological artifact, b) the dilemma of individual liberty balanced by social responsibility, produced through mask wearing, and c) the way we can create meaning through adaptation to a new "masked reality".

In this article, based on personal experiences, observation and bibliographical research, we explore and reveal the symbolic meaning of masks. We make use of the social identity theory (SIT) that assumes that one part of the self-concept is defined by our belonging to social groups (Trepte, 2006). More particularly we are examining our identity's, personal and social, need to respond to the 'obligation' of mask wearing. We believe that finding or inventing meaning to the use of mask, can help us evolve and accept our new reality.

***Keywords**:* masks, identity, responsibility, meaning creation, innovation.

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1 INTRODUCTION

Masks have suddenly become an '*object of desire'*. The meaning of the face masks is, of course, strongly related to the prevention of the contagion, and it is also becoming a compulsory accessory enforced by the laws of many countries (Al Jazeera, 2020). Indeed, governments require from citizens to wear face masks, to protect themselves and others.

The use of masks has put us into a certain struggle, over our identity, our reactions, our way of being, of exchanging, of communicating. A mask prevents the expression of a part of our identity, i.e., the main paralinguistic signals of non-verbal communication such as facial expressions, speech movements and other personal characteristics, prohibits our social identity to grow. Howard (2000) refers to the 'struggles over identities', which social inequalities, nationalisms, and social movements might bring forward. Identities, as fluid, multidimensional, personalized social constructions, reflect and reveal the structures of our everyday lives and the socio-cultural environment in which our lives are lived.

In this article the symbolic meaning of masks as an anthropological artifact is observed. The dilemma of individual liberty balanced by social responsibility, produced through mask wearing is examined, and new ways are offered to create meaning and be able to adapt to a new "masked reality". The focus on meaning of the mask in relation to its use, is the same process with all artifacts that create a further layer of the body (condoms, personal protective devices, underwear, religious clothing, etc.), producing a similar dialogical movement in the meaning of safety/unsafety.

2 METHODOLOGY

In this article the social identity theory (SIT) is applied that supports that one part of the self-concept is defined by our belonging to social groups (Trepte, 2006). Linking the identity and the social theory can establish a more fully integrated view and theory of the self (Stets & Burke, 2000). Then, self-perception theory is quite prominent, which refers to our own observation and understanding of our own self (attitudes, emotions), observing our behavior (Bem, 1972).

More particularly examining the need of our identity, personal and social, to respond to the 'obligation' of wearing a mask is discussed. Based on literature review, personal experiences and observation, the focus is on a) the symbolic meaning of masks as an anthropological artifact, b) the dilemma of individual liberty balanced by social responsibility while wearing a mask, and c) the need of meaning creation to be able to adapt to our new "masked reality".

Understanding the symbolic meaning of masks, throughout the years, we can better evolve and accept our new masked reality, our 'new normal'.

3 LITERATURE REVIEW

The research of Noyes *et al.* (2021), examines the challenge to face identification and emotion recognition in Western cultures. Tateo (2021) explores the way people make-meaning of the mask, analising preferences toward different types of face masks people would wear in public. No research paper, to our Knowledge, has been yet written concerning the impacts of mask wearing on our personal and social identities, and how we can try to reverse the negative situation of mask wearing into something positive and acceptable.

We can find research papers, written before the current COVID19 pandemic, that examine the link between masks and identity. Pollock (1995) examines the meaning and symbolism of masks, and the social functions of masking ritual, through a semiotic perspective that treats masks as icons and indexes of identity. Roy and Ladwig (2015), examines identity and masks usage potential to support adolescent development and self awareness. Potts and Dedekorkut-Howes (2011), examines a hypothetical 'glittering fake mask' of the Gold Coast's city in Australia identity.

Finally, most of the scientific articles written after the beginning of the COVID19 pandemic (March 2020), provide evidence on the use of face masks impeding the transmission of the coronavirus.

4 DUALITY OF PERSONAL ANS SOCIETAL IDENTITIES

Our individuality notwithstanding, our *identity* must be regarded in relation to a group. It is not just a question of 'who I think I am' but also of 'who I think I am as part of a society, a group, a family' and then of 'who the other part(s) of this society, group, family, consider that I am'. Hence, our social identity is how we see ourselves, and how the other sees us, as a part of the society: "Identities are thus strategic social constructions created through interaction, with social and material consequences" (Howard, 2000: p. 371).

Our social identity, based on the social identity theory, is in most cases inseparable from our personal identity. Individuals define their identities along both of these two dimensions, the social and the personal, since each one of us belongs to different social groups; but at the same time we have our personal characteristics that distinguishes us from others (Howard, 2000). We create our identity in the process of interacting with other people, and we actually construct our social identity in the process of exchanging, collaborating, and communicating. Our *social* identity differs from our *personal* identity, in terms of variables such as personality traits (Jenkins, 2014). We can say that our overall identity is constructed by our personal identity in accordance with multiple social identities, each of which is linked to different social groups, since an individual belongs to many different social identity groups (*ibid.*).

In fact, how we are, or better how we think we are, and how the other sees us, might not be the same. It is important that we know who we are and what we want in order to understand both our personal and social identity.

Finding a purpose in life can help the fulfilment of all our different identities (personal, social, or other). This is why discovering a purpose for the use of masks can ease its acceptance. Giving these objects a meaning, something like the idea that by wearing a mask we are saving humankind from extinction, automatically transforms each one of us in a superhero. We can easily surpass this difficult situation by adapting and innovating. Differently said, we can invent the conditions to help us easily accept, and overcome the difficulties of mask wearing, by being creative and open to solutions like the one mentioned above. Transforming this new identity tool, which is now part of our face, symbolically to a medal of honour for the people that wear it, can help people accept this 'strange' situation.

5 SYMBOLIC MEANING OF MASKS AS AN ANTHROPOLIGICAL ARTIFACT: SYMBOLIC REPRESENTATIONS OF HIDDEN MEANING(S)?

Referring to the symbolic meaning of masks as an anthropological artifact, we should first of all think of how masks have always been an important anthropological object. We often hear about *masked/fake people*, as persons who do not reveal their true feelings and thoughts, which might also be a reason for not accepting wearing a mask. "Commonly, wearing a mask has been associated with the hiding of one's true self, such as in *The Phantom of the Opera* and *The Man in the Iron Mask*. Yet, the masks we adopt and how we wear them also tell us something about who we are" (Kelley, 2020: p. 116). Nevertheless, if we think that through masks wearers can transform to another person, travel in another time, perform and incarnate another self, this reveals a different perception of mask wearing, giving new ideas to innovative and become creative. Thinking also about the sacred masks, used in rituals, during carnivals, in theatres, in private meetings and negotiations, we understand that masks can represent different symbolic values over time.

A mask can be seen like the chase to reveal, to try and to experience a different identity. Through play, we are able to take a role, to interpret, to become someone/something else. Changing our appearance, with the help of a mask, gives us more choices to explore our different identities. In this way, we can discover or rediscover ourselves and examine our social and personal identities. How others see me and how I see myself while wearing a mask have today become part of our identity (personal and social).

It is the perception of each of us, regarding mask's use and wearing, that can make a huge difference. For instance, we could be inspired by the ancient Graeco-Roman world for our communication with others during this pandemic, taking the example of theatrical masks. Ancient theatrical masks revealed emotion and feeling through the eyes and not just the mouth (Hiestand, 2020). We can use this 'idea' to our benefit, trying to find ways to communicate while wearing a mask. Then, why don't we also think about the practical use of masks in modern East Asia, where face masks are worn to combat urban pollution, to prevent allergies, or to provide privacy in densely populated East Asian cities? (Hiestand, 2020). It is true that this year's winder (October 2020- March 2021) there were no or very little incidence of normal flu (Lovett, 2020), because of mask wearing, among other things. During cold and

flu season at East Asian cities, someone with a cold is expected to wear a face mask in public, in the office, and at school (*Ibid.*).

Today, still in a state of emergency due to COVID-19, face masks have become the symbols of this pandemic, a semiotic device of meaning production. People have learned, or must learn, to include them in their everyday life routine, even after the immunity process via vaccinations (Siegrist, n.d.). This meaning will certainly change when and if masks become mandatory again (Tateo, 2021). Yet, at the time that this paper is written, we should actually see the positive aspects of wearing a mask, understanding that we protect ourselves and the others is like we 'show our smile to the world'. Giving masks such a meaning can help us overcome every difficulty we might face while wearing it. Meaning-making of masks, making them important, triggering a dialogical relation between ordinary and extraordinary (Tateo & Marsico, 2019 cited in Tateo, 2021) can help our personal and social identities to grow, even while wearing a mask. "Understanding how people make meaning of their use is fundamental" (*Ibid.*). We can then try and find our own meaning, inspired by how others have responded to this need.

A mask impacts identity from the moment that people actively produce identity through their talk and everyday interaction. The interactionist literature on identity articulates the construction, negotiation, and communication of identity through language, both directly in interaction and discursively through various forms of media (McAdams, 1995). Media, among other things, can have a great impact on our resistance to mask wearing.

6 DILEMMA OF INDIVIDUAL LIBERTY BALANCED BY SOCIAL RESPONSIBILITY: RESISTANCE TO AND REFUSAL OF MASK WEARING

In this part we will refer to the dilemma of our individual liberty balanced by our social responsibility, on whether we agree or not to wear a mask. There are various reasons and conditions that can influence how we decide or not to wear a mask. Ferng *et al*. (2011: p. 19, cited in Tateo, 2021), examined some of the reasons that people do not accept to wear a mask: a) they feel uncomfortable; b) different perception of safety/unsafely; c) this would embarrass people to wear their masks outside. Nevertheless, it seems that most of us make meaning of the face masks, as objects related both to their self (personal identity) and to others (social identity) (Tateo, 2021). Apart from its safety function, sanitary mask becomes a sign of "confidence", in interpersonal relationships (*idem*), as it prevents the contagion to the person wearing it and also protects the others (preventing the person wearing to spread the virus).

On the other hand, there are cases where Coronavirus might also be only a small part of some people's everyday problems/dilemma, of whether to wear a mask or not. Kelley (2020: p. 116) describes his stem cell transplant on October 2019: '*Initially I felt quite conspicuous wearing a mask in public. With time, however, I became more comfortable wearing the mask into stores, especially when I could go outside to avoid close contact while my wife made the purchase. After the federal government's admonition to wear masks in public, to arrest the*

spread of COVID-19, I became even more relaxed wearing a mask in public. As one passer-by on a hiking trail called out, "Yo, Bro! Coronavirus. Good for you, Dude!" I thought, "If only COVID-19 was the biggest of my problems."

Then, it is interesting to ask ourselves whether we would most likely decide to actually wear a mask to protect ourselves or others. In Canada, seeing from the results of a research conducted by Linden & Savoie (2020), people are more willing to wear masks as a measure to protect others from COVID-19 rather than themselves. The fact that by wearing a mask I am protecting the world from extinction is a great source of meaning that can make people wear a mask. Furthermore, thinking about social identity, it is interesting to think about how people tend to evaluate positively those groups to which they belong and to discriminate against groups they perceive to pose a threat to their social identity (Howard, 2000). It would be then important to examine how people actually enter a social group, taking the example of a group supporting the mask wearing during the pandemic.

Speaking of groups, a major point to examine is the mask denials. There are actually many groups of mask deniers (Gillespie, 2021), since the beginning of this health crisis. Some people might have refused to wear masks often as a symbol of their rights and others still believe that coronavirus does not exist or that they are not in danger (*idem*). Conspiracy theories and fake news has been feeding the denial group for a long time (Romer & Jamieson, 2020).

However, the number of mask denials has reduced, since many of the ones that initially denied started understanding that COVID-19 really exists and it is not about any misinformation or fake news (Kefalaki & Karanicolas, 2020). Groups of mask denial reveal a part of our social 'masked' identity, an identity that does not accept the change or that does not trust its ability to accept, adapt to, and go out for solutions that would not put the entire society in great risk.

Linden & Savoie (2020) explain that nonmedical masks serve not to protect the wearer but rather others. While examining the decision to wear a mask from this optic, it becomes a function of collective interest that impacts and refers with our social identity. Ostrom (2000, p. 142) argues that a substantial proportion of the population is composed of "conditional co-operators". These "conditional However, the number of mask denials has reduced co-operators" act in the collective interest as long as they see a sufficient degree of reciprocation by others and would be willing to wear a mask to protect others so long as they observe a sufficient number of people within their group doing the same. This conditional acceptance to wear a mask also reveals that our social identity can many times gain ground to our personal identity, and for that reason we should never underestimate its importance (Linden & Savoie, 2020).

7 CREATE MEANING TO ADDAPT TO OUR NEW "MASKED REALITY"

Making meaning of masks might be indeed the way to deal with the ambivalence of human existence (Tateo, 2021). We can use the 'expressive power of masks' to communicate (see also Hiestand, 2020). There are different colours, shapes of masks, and even written messages

that can be marked on masks, showing our need to communicate and express ourselves. We can even create our own masks, revealing our creativity.

Creating meaning for the use of mask in order to adapt to our new "masked reality" might be considered an obligation for our times. Masks today are promoted in different forms and colours to cover various possible situations and meanings. Masks with different colours, decorated in different ways, can be used to express our creativity, our thoughts and our feelings. Speaking from a personal point of view, processing different coloured masks and wearing them, permits me to express my mood, my emotions, my preference for the day.

Having a lot of different masks, masks of many different colours, shapes and even with different expressions designed on them, can help our nonverbal communication. This might be a way to express our mood of the day. It would be like using emoticons (Facebook, LinkedIn, etc.) or like wearing an outfit of a certain colour that expresses how we feel. The aesthetisation of masks can also be compensatory: *'[G]iven the loss of nonverbal facial cues. Like adding an emoji to a text message, my party mask sends a happy, joyous message that often opens positive, casual conversation: "I love your mask!" "Thanks, I really like the colours!" Interestingly, I recently misplaced the party mask after a short camping excursion and was without it for a few days. Even though I still had the black mask, I felt mild anxiety without the party mask, similar to what many of us experience when we're without our phone for a few hours. Evidently, having both masks available represents a sense of safety and security for me as I continue to work out my identity and, of course, maintain fairly stringent health practices'*. (Kelley, 2020: p. 118)

Moreover, we can also remember that the *aesthetisation of the face masks* represents one of the most powerful cultural tools through which humans make sense of both positive and fearful events (Tateo, 2017, cited in Tateo, 2021). It is a long time ago that people first began to relate themselves to face masks as a semiotic layer; they make sense of it that at the moment represents at the same time part of the body and emergency artifact.

Kelley (2020) uses autoethnography to explore his mask-wearing journey as identity making, while wearing a mask after his stem cell transplant (October 2019). Wearing a mask became a new way of life to him, making basic communication with other people challenging, while mask wearing also stimulated internal adaptations of his personal identity. The mask itself became 'a symbol of his identity journey'. One interesting aspect with this seven-month experience he had is that it occurred before the COVID-19 crisis and continued with this global virus arrival:

...[B]eing forced into mask-wearing has provided a rare opportunity. Since the use of comedy and tragedy masks in ancient Greek theater, masks (literally and figuratively) have represented the emotional experience of individuals and their public personas (Tassi, 1993). In this regard, Goffman's (1959) dramaturgic perspective encourages us to think of the presentation of self as performance. As Manning (2005) observed, "Each person, Goffman reminds us, is etymologically a mask" (p. 2).'' (Kelley, 2020: p. 116)

Then, even if wearing a mask prevents non-verbal communication, it is up to us to invent new modes of communication. As Kelley (2020: pp. 122-123) describes, *'[M]asks restrict expression of emotion, a key characteristic of what it means to be human. We dehumanize others, and ourselves, when our perception is that they, or we, only experience a limited range of emotion (Oelofsen, 2009)…. Another form of dehumanization that I have experienced comes through invisibility. Invisibility has often taken the form of being unrecognizable*'.

Irrefutably, face masks have now a central role in our lives and will continue to do so even after the actual pandemic of COVID-19. They will become an object of ordinary life. Inventing a meaning for the use of this artifact and adapting it to our everyday life can help us accept this actual situation, as its correct use can save lives.

Lack of safe space results, once again, in pulling away, withdrawing, feeling small and protective. In sharp contrast, feeling safe results in standing in the great expanse, feeling small, but with a heightened awareness of personal worth and place. The opening quote from James Baldwin (1963) speaks to this, "Love takes off masks that we fear we cannot live without and know we cannot live within," and he goes on, "I use the word 'love' here…in the tough and universal sense of quest and daring and growth." As I've argued, elsewhere (Kelley, 2019, 2021), full love creates safe space for intimacy (discovery and connection) and personal transformation. My masked-identity trek has led me through a wilderness strewn with the seeming indifference of medical challenges and coronavirus quarantine; yet, love, a daring and growth producing love, has been hiding in the spaciousness of this quest. Masked and unmasked, may we all continue to live with such spaciousness—grateful and loving, generous with ourselves and others. (Kelley, 2020: p. 128)

8 CONCLUSION: Acceptance of Masks in OUR New Normal Reality

Face masks have become and will continue to be an everyday accessory. Adapting to the actual situation and learning to communicate while wearing a mask is useful and we can even say necessary. It might seem difficult to interact, since interaction has a lot to do with the lower part of the face; nevertheless, we can find innovative solutions and communicate even with the mask on. Additionally, we should consider and accept the difficulties of wearing a mask, while a) breathing through a mask is more difficult than breathing without one, and b) there is a limitation of our smell while we wear a mask.

Nevertheless, we have already evolved to accept our 'new normal', and with the new knowledge we have acquired, we have found solutions to easily adapt. Actually, the mask is by itself a sign with its own positive meaning(s). A person who wears the mask, no matter if we are talking about a surgical mask or a tissue mask, transfers an important message: 'look at me', 'I am protecting myself', 'I protect you and others', 'I care about me', 'I care about you', 'I follow the rules that were imposed on me', 'I respect the rules', 'I care about humans', 'I would like people to overcome this difficult time', 'I am here for you', 'we are together in this', 'together we can!'. Translating the fact that we wear a mask for a high

cause, elevates the person who wears it to a ‘superhero’. This is an excellent meaning-making for the mask and the condition we actually face. During a pandemic, the mask should be considered a badge of honour, indicating the important role that you are playing in protecting the health of others during a crisis. Virus protection masks offer an opportunity to replace a visage of fear with a public expression of strength as a community. Thus masks become pragmatic and expressive socio-cultural tools for societies and individuals to move forward in confidence (Hiestand, 2020).

So maybe we should consider mask wearing and the whole situation of epidemics, and exceptional conditions that our world will continue to experience, as an ‘identity to come’, an identity that is already here, our ‘masked identity’, our ‘new identity’. Accepting the current situation and trying to find ways to innovate, communicate, exchange, can certainly make things better. We cannot transform the world and the situations we actually face, but we can adjust our attitude towards these changes. We can stay open to innovative ideas, discussions, proposals that can offer solutions and try to find ways to adapt.

To conclude with, it could be worth to mention that, once again, no matter how difficult it is and how quickly this global pandemic has changed our everyday reality, with understanding, respect, and unconditional love, we can only go on, discover, evolve, and continue for something better.

Our new ‘masked identity’, giving a name to our ‘masked face’, is an identity to discover, an identity that we will all learn to live with, an identity to meet, know, accept, and to which we need to adapt. Finding ways to make this ‘masked identity’ a part of our everyday lives can clearly ameliorate the ‘dark’ situations we are actually experiencing.

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Anti-facemaskism—Politicisation of Face Masks during COVID-19 in the Context of Trump's Plutocratic Populism

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ABSTRACT

The novel coronavirus (COVID-19) pandemic has had a devastating impact around the world. The responses by government leaders around the world have been varied. While certain countries (for instance, Taiwan and New Zealand) excelled in their responses, the Presidency of Donald Trump will perhaps be best remembered because of its populist, anti-scientific, and denialist approach towards the pandemic. After providing a brief literature review that focuses on the academic literature on face masks, we show that Trump's absurd responses to the pandemic were not unique amongst populists worldwide. Based on a qualitative analysis of Trump's numerous false and misleading statements about COVID-19, we reconstruct his coronavirus and facemask responses that contributed to the U.S. having the highest coronavirus death toll worldwide. We conclude by highlighting the importance of teaching critical thinking and the careful evaluation of the trustworthiness of sources to avoid falling for fake news and populist propaganda.

***Keywords*:** COVID-19, cross-national comparison, face masks, pandemic, populism.

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1 INTRODUCTION

With the coronavirus pandemic being far from over at the time of writing (April 2021), it may well turn out to be the largest economic, political, and social catastrophe since the Second World War. COVID-19 is also "the great unequalizer" (Zakaria, 2020, p. 151), with the pandemic erasing many of the gains achieved by emerging economies and exacerbating global inequality. Governments have reacted in four different ways to the pandemic. Many democracies have used a scientific, expert-driven approach in addressing the challenging trade-offs between fighting the virus and keeping their economies afloat. In authoritarian countries (with China a prime example), maximum coercion with little regard for civil liberties was observed. Countries under the rule of populists exhibited two additional approaches (that are not mutually exclusive and that could also occur sequentially): denialism; and heavy-handed, though incompetent, responses (*The Economist*, 2020f).

Pandemics can fuel populism, and populism can fuel pandemics (McKee *et al.*, 2020). Populism is an anti-pluralist, anti-establishment form of ethno-nationalist identity politics (Müller, 2017; Pierson, 2017). In Mudde and Kaltwasser's (2017, p. 6) broadly shared assessment, populism is a "thin ideology" that uses the homogeneous binaries of a "pure people" versus a "corrupt elite". Due to the 'thinness' of populist ideologies, they usually have to be attached to a wide variety of 'thick' ideologies such as nationalism, fascism, or racism, thus justifying populist agendas and explaining how the world is and should be (Mudde & Kaltwasser, 2017). As populists claim that they alone represent the people, and that their political rivals are illegitimate (Müller, 2017), they run counter to liberal democracy in ignoring the rights of minorities and being cavalier with the rule of law.

In the case of then-US President Donald J Trump, the 'pure people' are, amongst others, white working-class and middle-class voters (often without college degrees) and evangelical Christians in areas outside the most economically dynamic urban centres. The 'pure people's' opponents are everybody who is not like them: Black, Latin, and Asian people; immigrants; Muslims; globalists; technocrats and other experts; LGBTQI+ communities; and a list that undoubtedly goes on much longer. Trump's dualistic world is populated by winners and losers, the strong and the weak, those who agree with the real estate mogul and those who do not and are thus "corrupt, dishonest, unintelligent, or incompetent" (Jamieson & Taussig, 2017, p. 625). Our characterisation of Trump's populism is not an indictment of white Americans, as it is worth remembering that Trump lost the popular vote both in 2016 and in 2020, and many Republican voters were uncomfortable with his presidential campaigns. However, negative partisanship (Abramowitz & Webster, 2016) continued to play an important role in the 2020 Presidential Elections in a hyper-polarised country.

While Pierson (2017) appears to discuss the concepts of populism and plutocracy (government by the wealthy) as contradictory, Zakaria (2020) has convincingly combined them as a Janus-faced 'plutocratic populism'. Right-wing populists (exemplified by Trump and others) continuously send the kind of messages that their constituents want to hear. Hence, in his 2016 convention speech, Trump had pledged: "I have joined the political arena so that the powerful can no longer beat up on [sic] people that cannot defend themselves".

However, there is a chasm between plutocratic populists' rhetoric and their actions: What they say is not what they do. Once in power, Trump formed a "cabinet of billionaires and multimillionaires" (Klein, 2018, p. 18) and "filled his administration with a mix of the staggeringly wealthy and the staggeringly reactionary" (Pierson, 2017, pp. S106-S107). He then pursued an economic agenda largely comporting with that of the Republican establishment, which was extremely friendly to large corporations and wealthy families, and introduced policies aimed at achieving radical cuts in the American welfare state; sharply reducing taxes for the wealthy; gutting consumer, worker, and environmental protections; and imposing extensive deregulation (Pierson, 2017). These policies were not precisely in the interest of the rural and moderate-income communities that helped Trump win office, and there were unkept electoral promises (such as bringing back jobs and insuring everyone for healthcare at lower cost while delivering high-quality care).

In the next section, we discuss our methodological approach in reconstructing Trump's coronavirus responses with special consideration of his anti-facemaskism—a term apparently coined in an article in October 2020 in *The Economist* magazine (2020d). After providing a brief literature review that focuses on the academic literature on face masks, we engage in a cross-national comparison of worldwide populist responses to the pandemic that show that Trump's was not an isolated denialist and incompetent response. Based on a qualitative analysis of Trump's numerous lies about COVID-19, we reconstruct his coronavirus and facemask responses. We conclude by highlighting the importance of teaching critical thinking and evaluating the trustworthiness of sources to avoid falling for fake news and populist propaganda.

2 METHODOLOGY

Our literature review in Section 3 shows that, despite the novelty of the topic and in addition to numerous (51, to be precise) journalistic articles, there is a growing academic literature about Trump and other populist leaders in relation to COVID-19 (Agnew, 2020; Eberl *et al.*, 2020; Gugushvili *et al.*, 2020; Lasco, 2020; McKee *et al.*, 2020; McQueen *et al.*, 2020; Rutledge, 2020; Stecula & Pickup, 2021; Vieten, 2020). A glaring gap in the academic literature, though, pertains to Trump's anti-facemaskism. We provide a brief overview of the academic literature on face masks that is quite unanimous when it comes to the usefulness of facemasks in conjunction with other measures in combating the pandemic. A cross-national comparison (briefly referring to populist approaches in nine countries: Belarus, Brazil, Hungary, India, Indonesia, The Philippines, Tanzania, Turkey, and Turkmenistan) in Section 4 enables us to locate Trump's approach to the coronavirus and face masks within a larger global context of populist leaders, deliberately placing Trump's denialism, anti-expertism, and anti-facemaskism in a comparative context. Through a qualitative analysis of Trump's utterances on COVID-19 and face masks, largely via a plethora of journalistic articles, our study explores Trump's denialist and incompetent approach.

3 LITERATURE REVIEW

Google Scholar searches—on "Trump and COVID-19" and "populism and COVID-19—yielded less than a dozen peer-reviewed journal articles and book chapters that were relevant to our topic. Amongst them, Rutledge (2020) puts Trump's failure to provide leadership in a

time of crisis in historical context, while Agnew (2020) not only blames Trump but also the U.S. government system. Gugushvili *et al.* (2020) and *McKee et al.* (2020) point to Trump's disregard for the unnecessary lives lost during the coronavirus pandemic, with McQueen *et al.* (2020) controversially tracing this back to German philosopher Nietzsche's concept of Superman (Übermensch) with its disdain for ordinary people. Other articles focus on conspiracy theories related to populism (Eberl *et al.*, 2020; Stecula & Pickup, 2021). In terms of cross-national comparisons, Lasco (2020) usefully compares the "medical populism" of Bolsonaro, Duterte, and Trump, whereas Vieten (2020) focuses on right-wing 'anti-hygienic' demonstrations in Germany. Our work adds to this corpus of research as it is the first academic article to focus on Trump's anti-facemaskism.

The ever more popular social media magnify the numerous false and misleading statements propagated by populists and have led to an 'infodemic' during the pandemic. Social media disseminate fake news and misinformation rapidly, with fact-checks usually spreading slower than fake news on social media (Vosoughi *et al.*, 2018). Fake news manipulates the public's perception of reality and is a great threat to democracy, journalism, and public trust in governments (Zhou & Zafarani, 2018). In a public health crisis such as COVID-19, fake news are rapidly transmitted through social media much like a real virus, 'infecting its hosts' with falsehoods (van der Linden *et al.*, 2020) and contributing to phenomena such as anti-facemaskism and anti-vaccinationism. To combat fake news, media literacy initiatives and 'prebunking' (pre-emptive debunking) are needed, as fake news-spotting and truth-discerning (identifying credible news) skills are learnable (van der Linden *et al.*, 2020). These skills are part of critical thinking. Thinking critically encompasses coming to our own decisions rather than letting others do this on our behalf (Brookfield, 1987). Critical thinkers' refusal "to relinquish the responsibility for making the choices that determine our individual and collective futures" (Brookfield, 1987, p. x) has rarely been as important as during the current pandemic.

The remainder of our literature review provides evidence on the usefulness of face masks during the coronavirus pandemic. The science around the use of face masks to impede the transmission of the coronavirus has advanced rapidly. The 'universal masking' generally mandated in East Asian countries was a key component of their responses to the pandemic, a fact initially overlooked by many Western experts (Zakaria, 2020). With the escalation in infected individuals, the World Health Organization (WHO) encouraged individuals to adopt mask-wearing practices (*BBC*, 2020b). When individuals are not wearing a mask, droplets carrying the virus are directly expelled into the air and could infect others. The COVID-19 virus remains viable in the air for numerous hours in aerosol form (Tang *et al.*, 2020). Moreover, asymptomatic carriers increase the risk of virus-spreading, and pre-symptomatic individuals could be contagious up to 2.5 days before symptom onset (Greenhalgh *et al.*, 2020).

Esposito *et al.* (2020) discuss 14 different studies on face masks as a strategy to decrease the rate of transmission. Research proves that face masks aid in avoiding a respiratory infection by preventing inhalation of large droplets and blocking droplets from spreading when individuals cough, sneeze, breathe, or talk (University of Maryland, 2020; Milton *et al.*,

2020). Howard *et al*. (2021) and Brainard *et al*. (2020) also investigated the effectiveness of face masks in reducing coronavirus transmission. While their studies arrive at vastly different assessments of the efficacy of face masks, both articles conclude that they constitute a critical barrier during the pandemic.

Implementing mandatory mask-wearing in healthcare facilities significantly dampens the transmission of COVID-19 as it greatly reduces the spread of the virus from asymptomatic or presymptomatic individuals (Seidelman *et al*., 2020). A study from Hong Kong arrived at similar findings in the context of the general population: enforcing the wearing of face masks aided in mitigating the spread of COVID-19 (Cheng *et al*., 2020). A comprehensive review by Chu *et al*. (2020) of 172 observational studies across 16 countries also supports the use of facemasks, together with eye protection, in effectively reducing transmission of COVID-19 amongst the community and in hospital settings. Several studies have shown that implementing compulsory community mask-wearing has reinforced other virus-preventative behaviours like hand hygiene and reduced face-touching (Betsch *et al*., 2020; Chen *et al*., 2020; Shiraly *et al*., 2020). Moreover, a study by Miyazawa *et al*. (2020) pointed out that the absence of public mask-wearing during the early phases of the pandemic had a significant contribution to COVID-19 death tolls.

Wearing face masks aids in reducing infection rates, but it is not a panacea. It should be done in conjunction with other safety measures such as frequent hand-washing, testing and contact-tracing. Not wearing face masks does not help and exacerbates the coronavirus crisis. The proven efficacy and benefits of mask-wearing should spur governmental leaders to roll out directives for mandatory wearing of face masks in public spaces to reduce the threat of the virus and allow for an earlier resumption of economic activities.

In addition to facemask-wearing, many countries also implemented additional expert-driven safety measures. According to de Bruin *et al*. (2020), measures include mobility and socio-economic restrictions, hygiene measures, physical distancing, communication, and international support. Mobility restrictions include active zoning, closed or limited public transportation, and air traffic restrictions (Hellewell *et al*., 2020). Socio-economic restrictions include restricting social gathering and crowding by closing or limiting places of work and recreation (e.g., suspending bars, restaurants, retail). Countries have also implemented physical distancing of one to two metres between each person and restricted the size of group gatherings. Hygiene measures like frequent washing of hands, sanitising, mask-wearing, and decreased food sharing are encouraged as they limit the risks of spreading the virus via direct or indirect contact (Feng *et al*., 2020; Leung *et al*., 2020). Well-coordinated communication channels and international cooperation are vital in risk mitigation measures, as they motivate the public to comply with the measures by building trust, understanding, and acceptance (Hellewell *et al*., 2020).

4 POPULISTS AROUND THE WORLD BETWEEN DENIALISM AND INCOMPETENCE —A CROSS-NATIONAL COMPARISON

The dismal responses to the pandemic by many populist leaders can be classified as either denialism or incompetence or both. The dualist populist leader as the defender of the 'pure people' usually exhibits anti-expertism against the 'wicked elite' of scientists and doctors (Guest, 2020). Undoubtedly, numerous populist and authoritarian leaders also saw COVID-19 as an opportunity to introduce dictatorial 'emergency' measures.

Some of these populist responses are almost comical, but one must not forget that this is a deadly serious matter as populist leaders' denialism, anti-expertism, and incompetent responses had lethal consequences, leading to many hundreds of thousands of preventable deaths. While it is not possible to prove how many deaths were caused by populist leaders, one does not need to look any further than well-governed countries such as New Zealand, Singapore, and Taiwan, whose cumulative death toll was lower than 100 COVID-19 deaths (Statista, 2021).

Amongst the denialists is Turkmenistan's President Berdymukhamedov, who first fined his subjects for donning face masks before ordering everyone to wear them as "a protection against dust'" (*The Economist*, 2020f). Gurbanguly Berdymukhadmedow also recommended "inhaling the smoke from a burning desert-region plant" to beat the virus (Newkey-Burden, 2020). Another idiosyncratic despot, Belarus's Alexander Lukashenko, dismissed COVID-19 as a "psychosis" and recommended self-protection by "drinking vodka, driving a tractor and steaming in a...sauna" (*The Economist*, 2020d; 2020e). Populist leaders are often worried about causing a panic and disrupting the economy, and Lukashenko makes for a fine example by having said: "[T]here shouldn't be any panic…. You just have to work, especially now, in a village…. There, the tractor will heal everyone. The fields heal everyone" (cited in Newkey-Burden, 2020).

Tanzania's recently deceased President John Magufuli declared his country to be COVID-free, even as corpses were secretly stacked in cemeteries at night and the virus spread unchecked through the population (Guest, 2020; *The Economist*, 2021b). This claimed success against the pandemic was attributed to divine intervention: Churches remained open because the coronavirus was "satanic" and "cannot survive in the body of Christ" (Magufuli, cited in *The Economist*, 2020a).

Denialism was also rife in Indonesia: Until early March, 2020, the government claimed it had no cases of COVID-19, which the health minister attributed to prayer. The home affairs minister urged the public to eat more bean sprouts and broccoli, while President Joko Widodo preferred traditional herbal remedies (Lindsey & Mann, 2020). Another denialist is Turkey's Recep Erdoğan, who labelled the head of the Turkish Medical Association for questioning the government's suspiciously low number of COVID-19 cases as a "terrorist" and called for her association to be disbanded (*The Economist*, 2021a).

Brazil is the country with the second-most Covid-19 deaths (Statista, 2021), exceeded only by the U.S.. Unlike the U.S., Brazil is still ruled by a populist, Jair Bolsonaro, sometimes called the 'Trump of the Tropics'. Bolsonaro dismissed the coronavirus as "the sniffles"

while touting useless and dangerous drugs like hydroxychloroquine (Guest, 2020; *The Economist*, 2020b). Despite government regulations, Bolsonaro refused to wear a mask (Zakaria, 2020). Bolsonaro also regarded social distancing as unnecessary and railed against lockdowns; moreover, while vaccination efforts remained pathetic as recent as March 2021, Bolsonaro advised the populace to stop "whining" about the deaths and to move on (cited in DeCiccio, 2021).

On occasion, populists switch from denialism to heavy-handed responses while remaining incompetent. After first belittling the COVID-19 threat (Lasco, 2020), The Philippines' Rodrigo Duterte then over-reacted. Strongman Duterte criminalised the poor and ordered the police and military to kill those not complying with lockdown measures: "Shoot them dead…. Instead of causing trouble, I'll send you to the grave" (cited in Tisdall, 2020). India's Prime Minister Modi imposed a tight lockdown, leading to millions of workers losing their jobs and returning from cities to the countryside, "turning packed bus stations into covid-19 hotspots and spreading the virus across India" (Guest, 2020). Furthermore, populists typically excel at scapegoating antagonists, excusing themselves, and simply changing the subject. For instance, India's Modi, despite blaming Muslims for spreading the virus, maintained a high approval rating (Guest, 2020). Having spent years painting Muslims as a "demographic, cultural, sexual, and security threat", the government then portrayed them as a "biohazard" (Saran, cited in *The Economist*, 2020c).

COVID-19 also created opportunities for populists to assume extraordinary powers, ostensibly to protect public health. Numerous states of emergency were declared. For instance, Hungary's parliament issued a "coronavirus law", giving Prime Minister Orban almost unlimited dictatorial powers in the heart of Europe (*The Economist*, 2020c). Populists tend to prioritise the economy in which, not seldom, they have a substantial stake. In order to keep the economy going and not causing a panic, they mock social distancing and do not wear face masks. As a result, the populist leaders of the countries with the worst death tolls—Trump and his tropical alter ego Bolsonaro—all contracted COVID-19.

5 FINDINGS AND DISCUSSION: TRUMP'S ANTI-FACEMASKISM IN THE CONTEXT OF HIS DISASTROUS COVID-19 POLICIES

Jamieson and Taussig (2017) have described Trump's rhetorical signature as Manichean (breaking everything down into good or evil), evidence-flouting, accountability-dodging, and institution-disdaining. While in office, Trump routinely dismissed expert advice, instead relying on "hearsay, anecdote, and suspect information in partisan media" (Jamieson & Taussig, 2017, p. 620). He also shifted the burden of proof to those who opposed his assertions and shunned responsibility for distributing false and misleading information. In addition, Trump rejects conventional standards of accountability and denies discernible reality (Jamieson & Taussig, 2017). He insulates his followers from the legacy media by labelling any contradictions as 'fake news', thus attempting to avoid exposure of his own false statements.

Lies are false statements that the originator knows to be false. While not every false statement by Trump may be a lie (as he may not always deceive intentionally, per Hulpke, 2020), make

no mistake: When a political leader repeats lies frequently, this amounts to a disinformation campaign. *The Economist* (2020h) has called Trump's contempt for the truth the "most head-spinning feature" of his presidency in their judgment: "Nothing Mr Trump says can be believed". In an analysis of Trump's lies, DePaulo (2017) concluded that most lies by Trump were 'cruel' and 'self-serving'—a third type of lies, 'kind lies' (i.e., to spare another's feelings), are notably underrepresented when it comes to the former president (DePaulo, 2017).

Trump's disastrous coronavirus policies predate the advent of the pandemic, with his administration cutting the budgets of key agencies dealing with public health and diseases (Yamey & Gonsalves, 2020). Later, the world-class Centers for Disease Control and Prevention (CDC) were side-lined by the Coronavirus Task Force, led by the science-denying then-Vice-President Pence. The government's de facto spokesperson on the pandemic was not a scientist but rather then-President Trump himself (McQueen *et al*., 2020).

Trump's denialism of the pandemic is typical for populists and can be viewed in the context of his anti-scientific anti-expertism. His denialism has been well-documented, for instance, on the Wall of Lies, an art installation documenting Trump's false and misleading statements (Figure 1). Based on *The Washington Post's* extensive fact-checking, Trump made 30,573 false or misleading claims as president, nearly half of which came in his final year (Kessler, 2021).

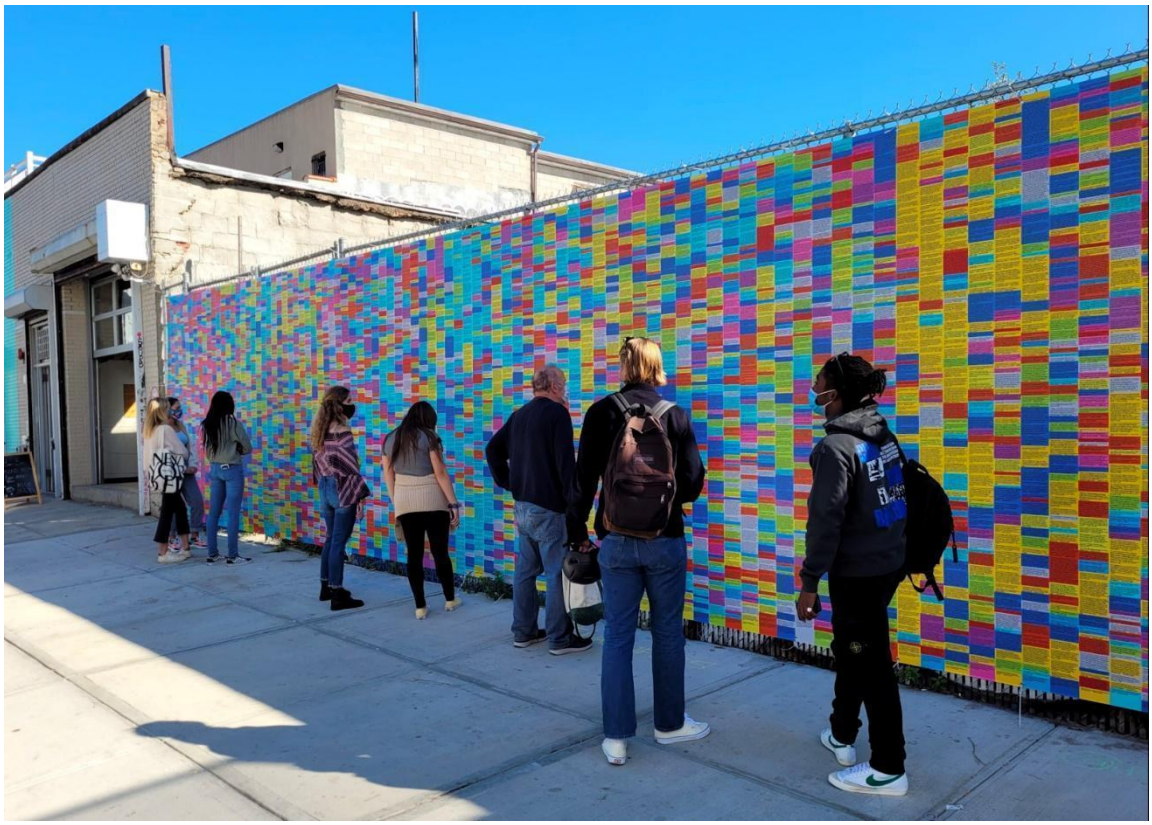

Figure 1. Wall of Lies. The lies are colour-coded, with coronavirus-related 'alternative facts' in green-coloured notes. Source: https://www.dailymaverick.co.za/article/2020-12-14-all-in-all-it-was-all-just-20000-lies-in-the-wall/

Whilst it would go beyond the confines of our article to discuss all disinformation that Trump and his administration have been spreading about COVID-19, we discuss some of the important instances briefly in order to provide a context for his anti-facemaskism. Towards the beginning of the pandemic, on 30 January 2020, Trump claimed: “We think it's going to have a very good ending for us… that I can assure you” (cited in Oprysko, 2020). On 23 February, he further reassured: “We have it very much under control in this country” (cited in Rieder, 2020). He expected that the coronavirus would disappear on its own “like a miracle” (cited in Paz, 2020). In mid-March, Trump continued to claim American exceptionalism: “The virus will not have a chance against us”, with no nation supposedly more prepared or resilient than the U.S. (cited in Woodward *et al*., 2020). However, when interviewed by legendary investigative journalist Bob Woodward, Trump admitted that he understood the severity of the virus and its threats as early as January 2020. He deceived the public in order to not “create a panic” (cited in Woodward, 2020, p. 10). In February 2020, he told Woodward (2020, p. 13): "This is deadly stuff. You just breathe the air and that's how it's passed”.

Numerous exceptionalist claims were made to paint the Trump administration’s coronavirus response in a highly positive light, and they also extend to the availability of tests. In March 2020, Trump falsely claimed that “anybody that needs a test, gets a test”, while the government’s top infection expert, Dr. Fauci admitted: “It is a failing” (cited in Woodward *et al*., 2020). Trump wrongly contended that the U.S. had the highest rate per capita of COVID-19 testing (Sprunt & Montanaro, 2020). To a mostly unmasked crowd in Oklahoma, Trump suggested slowing down the testing in order to report fewer cases and fare better in international comparisons (Lozano, 2020). [Allegedly, he was joking.] As late as October 2020, Trump embraced the idea of promoting 'herd immunity' while avoiding the term—prominent epidemiologists argue that a pursuit of natural herd immunity (instead of social distancing and facemask-wearing) would lead to millions of deaths in the U.S. alone (Gittleson, 2020).

It seems fair to conclude that Trump’s denialism and exceptionalist claims were undertaken in the hope to be re-elected as President and to fully reopen the economy. From the populist playbook is also Trump’s refusal to admit mistakes and rather blame the ‘impure people’/the ‘corrupt elite’. Popular targets of Trump’s blame-deflecting were Democrats, the media (a.k.a. ‘fake news’), state governors, China (the Chinese government certainly deserves blame for its initial lack of transparency during the coronavirus outbreak), experts, and the World Health Organization.

However, more than 400,000 U.S. COVID-19 deaths during Trump’s presidency (Stone, 2020) stand as an indictment of his administration’s poor preparation for and response to the pandemic. The Trump Death Clock in Times Square (see Figure 2) aimed to show the number of deaths attributable to Trump’s inaction during the pandemic.

Figure 2. The Trump Death Clock on May 19, 2020. Photo by Andrewsmclain, CCBY 4.0. Source: https://en.wikipedia.org/wiki/Trump_Death_Clock#/media/File:TRUMP_DEATH_CLOCK_2_051920.jpg

Trump also made numerous unfounded and shocking medical claims. In February 2020, Trump claimed that scientists were "very close to a vaccine" when none was near production (Thielking, 2020). He also promoted unapproved and dangerous preventatives and treatments. In March, Trump promoted hydroxychloroquine for "use immediately" despite a lack of evidence for its effectiveness (Yamey & Gonsalves, 2020) and claimed to be taking the drug himself as a preventative (The Telegraph, 2020). Hydroxychloroquine was later increasingly linked to deaths (Olorunnipa *et al*., 2020).

On 23 April 2020, Trump suggested that injecting or drinking disinfectant or bleach could cure COVID-19, prompting experts to urgently warn the public against inhaling or ingesting bleach (Yamey & Gonsalves, 2020; Zakaria, 2020). Abject and dangerous displays of know-nothingness such as the obscurantist promotion of hydroxychloroquine and suggestions of injecting disinfectant are but some instances of Trump's anti-scientific stance and his not caring about the consequences of his words on the lives of people in America and beyond.

One of the most puzzling aspects of Trump's denialism is his anti-facemaskism. From a rational perspective, a plutocratic populist should encourage the wearing of face masks, as it may lead to fewer infections and deaths plus an earlier opening of the economy. However, despite Trump's occasional lukewarm endorsement of the wearing of face masks, it became such a politicised, partisan issue in an election year that he nonetheless hardly ever wore a face mask himself.

In order not to worsen the existing mask shortage in the medical sector, the U.S. government initially did not recommend the use of face masks by the general public (Jankowicz, 2020). As late as end-March 2020, the CDC, in line with WHO guidance, discouraged the use of face masks by healthy members of the general public (Yan, 2020). On 3 April, federal officials reversed their earlier guidance, and voluntary mask-wearing was finally

recommended, but Trump downplayed the usefulness of face masks in saying: “You don't have to do it. I am choosing not to do it.... It is only a recommendation, voluntary” (cited in Lizza & Lipman, 2020). He added: "Wearing a face mask as I greet presidents, prime ministers, dictators, kings, queens… I just don't see it for myself” (cited in Vacquez & Malloy, 2020).

Interestingly, in the U.S., opposition to the practice of wearing face masks, and to orders mandating face mask use, preceded the Trump presidency by almost a century. Such opposition can be traced back to the Spanish flu pandemic of 1918-1919 and the Anti-Mask League of San Francisco (Kane, 2020; see Figure 3). However, a hundred years ago, information was not as readily available as at present. Then, again, disinformation was not as widespread either.

Figure 3: A group of mask-wearing citizens during the flu pandemic of 1918. Photograph: Raymond Coyne/Courtesy of Lucretia Little History Room, Mill Valley Public Library. © The Annual Dipsea Race.

In April 2020, a plan to distribute 650 million reusable masks in five-packs to each residential address in the U.S. was scrapped simply to avoid creating a panic (Romm *et al*., 2020). By May 2020, mask-wearing in the U.S. had become highly politicised. During a press appearance at a Ford plant, Trump did not wear a mask and said that he "didn't want to give the press the pleasure" of seeing him wearing one (cited in Wise, 2020). Despite briefly encouraging mask use in July “if it’s necessary” (cited in Choi, 2020), Trump almost never wore masks during his rallies and also did not mandate their use, leading to largely unmasked crowds.

Lamar Alexander, the Republican chair of the Senate Health Committee, lamented that “the simple lifesaving practice” of ‘masking up’ had become highly politicised: “If you're for Trump, you don't wear a mask. If you're against Trump, you do" (cited in Bosman, 2020). He

also proposed that Trump could "help end this political debate" (cited in Bosman, 2020). Instead, Trump kept mocking his Democratic rival Joe Biden for wearing face masks during his public appearances. In June, Trump commented on Biden's use of masks: “It's like he put a knapsack over his face. He probably likes it that way.... He seems to feel good in a mask..., feels better than he does without the mask, which is a strange situation (cited in Hellmann, 2020). And, in September, Trump asked a partisan crowd: "Did you ever see a man that likes a mask as much as him?.... If I were a psychiatrist, I'd say this guy has some big issues” (cited in LeBlanc, 2020). During a presidential debate, Trump again ridiculed Biden for his use of face masks: "I don't wear a mask like him. Every time you see him, he's got a mask. He could be speaking 200 feet away from them, and he shows up with the biggest mask I've ever seen” (cited in Victor *et al*., 2020).

Whilst the attempt at character assassination of a presidential rival may be unsurprising (even though it involves a critically important matter such as face masks), Trump’s continued anti-expertism is also in line with the populist playbook. Instead of supporting science by stating that the evidence on the usefulness of face masks had changed in their favour, he contrasted CDC officials’ initial and current advice and made expert advice appear arbitrary and fickle without reason. Trump said: “If you look at Dr. Fauci’s original statement, you look at a lot of people, CDC…they said very strongly...‘don’t wear masks.’ Then all of a sudden they went to ‘wear masks’” (cited in ABC News, 2020).

In late September, Trump held an outdoor ceremony at the White House Rose Garden for Supreme Court nominee Amy Coney Barrett. As many of the 150 attendees did not wear masks, it became a ‘super-spreader’ event. Trump, his wife, and other members of the White House staff tested positive for the virus after the event (Beckett, 2020). The employees who continued to work physically at the White House were instructed to wear surgical masks and personal protective equipment (PPE) when in close contact with Trump. Nonetheless, the super-spreader event and his own infection with COVID-19 did not end Trump’s anti-facemaskism. In October, he falsely claimed that 85% of people who wear masks catch COVID-19, misquoting a CDC study (Dapcevich, 2020).

Instead of recognising masks as part of a scientific, expert-driven approach to combat the pandemic, the issue of mask-wearing vs. anti-facemaskism became another binary tenet of a ‘culture war’ and ‘tribal politics’ in the U.S. Instead of a tool, masks had become a symbol, and instead of reflecting fact, they have become ideological (Friedersdorf, 2020). In such a hyper-polarised country, mask-wearing was associated with supporters of the Democratic Party who signalled that they took the pandemic seriously and that they were willing to make personal sacrifices (Lizza & Lipman, 2020). In contrast, anti-facemaskists were associated largely with the Republican Party, who invoked conspiracy theories and defended their ‘personal freedoms’, which apparently include the right to infect others with a potentially lethal virus. Trump supported these views and stated that the public should have a “certain freedom” (cited in *BBC*, 2020d).

Culturally, Americans tend to be individualists (rather than collectivists), and especially men may feel less ‘macho’ when wearing a mask, exhibiting a false sense of masculinity, with non-mask wearers attempting to avoid being perceived as vulnerable, fearful, weak, or

'uncool' (Capraro & Barcelo, 2020). Wearing a mask was also seen as opposition against Trump (see Figure 4). Face mask skepticism becomes perhaps easier to understand when one puts oneself in the shoes of a blue-collar worker who has become unemployed due to a lockdown, whilst medical experts, technocrats, and journalists, due to their ability to work from anywhere, continue to do well. Perversely, mask skeptics may even be motivated by the belief that experts see them as idiots; thus, shaming them for not wearing masks will only enhance alienation and continued non-mask-wearing (Rosenbaum, 2020). In essence, anti-facemaskism brings us back to the populists' 'thin ideology' that uses the homogeneous binaries of a 'pure people' versus a 'corrupt elite' and of 'we' (non-mask-wearers) vs. 'them' (mask wearers).

Figure 4. An unidentified Trump supporter wearing a "Make America Great Again" cap, using a face mask on a flight as a sleep mask, conspicuously leaving both his nose and mouth open and unimpeded. Source: Jessica Hazeltine's Twitter account, https://twitter.com/lvnitup22/status/1277283475419258883?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1277283475419258883%7Ctwgr%5E%7Ctwcon%5Es1_&ref_url=https%3A%2F%2Fwww.fastcompany.com%2F90522318%2Fthis-one-image-shows-how-wearing-a-mask-has-become-politica.

Minority communities have been particularly affected by the politicisation of face masks. When wearing masks, some African-Americans have been the victim of racial profiling due to their association with criminals concealing their identity (de la Garza, 2020). The fear of an unknown virus originating from China led to resentment towards Asian-Americans in the U.S., leading to numerous incidents of bullying, discrimination, and ethnic violence against mask-wearing Asian-Americans (Cheung *et al*., 2020; Ren & Feagin, 2021; Vachuska, 2020).

Trump's labelling of COVID-19 as the "Chinese virus" or "China virus" and his resistance towards face masks has exacerbated the xenophobia and racism (Budhwani & Sun, 2020; see Figure 5) already plaguing that country.

Figure 5. Photo of Trump's typed script with 'corona' crossed out and replaced with 'Chinese'. Source: https://www.washingtonpost.com/graphics/politics/2020/03/19/trump-greatest-sharpie-hits/?itid=lk_readmore_manual_36

In April 2020, Trump's comments about "liberating" parts of the country—especially those with Democratic governors—from coronavirus stay-at-home orders put millions of Americans at risk of contracting COVID-19 (AP, 2020). On 6 January 2021, Trump, after he had lost the election, continued to claim falsely that the election had been stolen from him. At a "Save America" rally, he told thousands of his supporters: "If you don't fight like hell, you're not going to have a country anymore" (cited in Woodward, 2021). Subsequently, a mob of about 10,000 invaded the Capitol grounds and some 800 suspected Trump supporters and "domestic terrorists" (then-Senate Minority Leader Chuck Schumer, cited in Choi, 2021) stormed the Capitol in a "failed insurrection" (then-Senate Majority Leader Mitch McConnell, cited in Choi, 2021).

6 CONCLUSION

As could be seen in our cross-national comparison, countries under the rule of populists typically exhibited two non-exclusive approaches to the pandemic—denialism and a heavy-handed, incompetent response. Trump's approach was less heavy-handed and more laissez-faire, but, in line with populist responses around the globe, was characterised by a continuous downplaying of COVID-19 and an incompetent response, exacerbated by numerous false and misleading statements. Our article is the first academic contribution to illustrate Trump's denialism and incompetence with his counter-factual and counter-intuitive (given his plutocratic populism) anti-facemaskism. The populists' dichotomy between a 'pure people' versus a 'corrupt elite' was perversely extended to non-mask-wearers vs. mask-wearers, leading to countless preventable deaths.

Populist leaders like Trump with their numerous misleading and false statements (not only during the coronavirus pandemic) have led to an epistemic crisis. Undoubtedly, Trump is a narcissist whose actions are principally devoted to advancing his own popularity and power; moreover an extreme "escalation of commitment" binds his followers to their leader, thereby giving Trumpism cult-like qualities (Lempinen, 2020). Not all Trump supporters are 'low-information voters' with an apathetic lack of awareness who may believe in QAnon, a bizarre conspiracy cult that centres on Trump defending the world against a vast network of Satanic pedophiles that include Democrats and the 'deep state'. There are also 'high-information voters' with 'motivated reasoning' who construct their arguments to arrive at a preferred conclusion (Klein, 2015).

Political theorist Hannah Arendt (2006) has described an individual's inability to differentiate fact from fiction as typical for totalitarian states and spoke in this context of the banality of evil. Populist governments' denialism and failures to combat the coronavirus swiftly and effectively can be considered evil, as despite having the expertise of top scientists at their beck and call, they chose anti-scientific routes in the interest of their own power preservation and economic agenda. An education for critical thinking and investigation to combat fake news and populist propaganda has never been as important as now in the age of social media (Kefalaki & Karanicolas, 2020).

More research is needed that details other populists' approaches to COVID-19, while more systematic comparisons between populist approaches to the pandemic would also be worthwhile. In addition, there are opportunities for empirical research using primary data. While our article was written in the midst of the pandemic, it is hoped that COVID-19 will eventually be relegated to the scrapheap of history, allowing for more detached perspectives. Defeating the virus will require fighting populism and other approaches disdained by populists, specifically those driven by science, expertise, rationality, openness, and international cooperation.

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Remote Lab Activities in a Digital Age: Insights into Current Practices and Future Potentials

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ABSTRACT

Laboratories and practical workshops are a crucial element in science, technology, engineering, and mathematics (STEM) subject streams in higher education, where the COVID-19 pandemic has created an unprecedented challenge in conducting such activities face-to-face. Many universities in the western world are now experimenting with various platforms to conduct laboratory activities remotely, in conjunction with online delivery of teaching. It demands significant adjustment to traditional face-to-face laboratory activities, where this paper investigates the practices universities currently adapted and potential future technologies available for remote delivery of laboratories. This paper also identifies the areas for enhancement of students' remote laboratory experience, and a survey was also conducted to identify students' perception of laboratory activities during online and hybrid delivery of teaching. The research study explored current practices of remote lab delivery and also provide an insight into the future potentials of remote lab activities in a digital age.

Keywords: Remote laboratory, Virtual laboratory, Higher education, Online teaching, Technology.

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1 INTRODUCTION

The COVID-19 pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become an unprecedented global catastrophe affecting people's lives and disrupting a variety of sectors. Governments of all the countries are taking their best preventive measures from simple physical distancing to lock-downs to flatten the COVID-19 infection rate, and to minimize the fatalities. The education sector has also been greatly impacted by the pandemic causing a worldwide shutdown of academic institutions including schools, colleges, and universities, to prevent large student-community gatherings which presents a potential threat of developing a sudden outbreak (Crawford et al., 2020).

Amidst the crisis, the majority of higher education institutions have been able to replace the physical mode of delivery with online platforms as the safest immediate solution. Online learning, computer-mediated learning, web-based learning, a few of which falls under the widespread virtual reality (VR) and distant education paradigm (Sarumi, 2020). It also conveys the idea that the availability of a device, capability to work using device and network connection or internet accessibility are required to accomplish distance education (Dhawan, 2020). Although shifting to an online platform is the safest preventive measure taken, inequities and inadequacies in education systems are still been argued (Kemp, 2020). Nevertheless, online education has become the new normal of education throughout the world.

Among numerous fields of education, Science, Technology, Engineering and Mathematics Education, which is widely known as STEM education, has become a major driving force behind the massive technological development in the world. The STEM education has been identified as essentially required in facilitating economical development, creation of jobs as well as international competitiveness (Uhomoibhi et al., 2014) where STEM would be beneficial in solving real-world problems through integrated, multidisciplinary, interconnected approaches as well as important in enhancing the critical thinking skills of the students (Hafni et al., 2020). Achieving hands-on experience through practical laboratory sessions is an important aspect of STEM education. There are a variety of objectives achieved through laboratory sessions such as teaching fundamental practical skills, to use equipment handling, educate students on taking observations and decisions, enhancing communication skills, linking the gap between the theoretical knowledge and experimental concepts to better achieve concurrent engagement of lectures and laboratory sessions etc.(Gibbs, G., & Habeshaw, 2011; Rowe et al., 2018). Ultimately, the practical sessions strengthen the learning process and stimulate scientific attitudes (Dan-Ologe & Shittu, 2012).

Due to the COVID-19 pandemic situation, the majority of the university programs had to be delivered through online mode including laboratory sessions. Delivering physical laboratory sessions through online mode is indeed a challenge and holds a huge responsibility. STEM-based laboratories have to provide actual hands-on experience as well as effective skill acquisition, which could be fulfilled either through remote access to real labs or virtual laboratory sessions (Potkonjak et al., 2016).

2 METHODOLOGY

This article used the method of systematic literature review, which presents the current practices and the future potentials of conducting remote lab experiments. The first goal was to understand how peer-reviewed literature demonstrates the methods of face-to-face learning and the transition into remote learning. The scope of the search limited to key-words such as remote lab experiments, virtual lab, COVID-19, higher education, distant learning, challenges, and future potentials. This article summarizes the laboratory activities through remote learning technologies, laboratory activities through virtual laboratory platforms and techniques and laboratory activities through AR as a part of the literature review findings.

We then presented an analysis of student perspective based on data we have collected a survey among first-year undergraduates at Sri Lanka Technological Campus (SLTC), Sri Lanka. There were 34 short answer type questions for them to directly choose their opinion and couple of questions included to explain their own thoughts in the survey questionnaire. Questions for the questionnaire survey were prepared based on the experience obtained through labs conducted online.

Students were from Biosystems Engineering (a group of 30 students), Information Technology (a group of 33 students) and Agricultural Technology students (a group of 37 students). The key aim of the study was to explore the student perception and effectiveness in delivering labs and to foresee the potential direction of future laboratory education.

The laboratory portion of each course module is synchronized with in-class lectures, allowing students to gain a better understanding of the theories and concepts that they learn. Lecture notes and all necessary materials for laboratory component were distributed through the Learning Management System (LMS), and the lecture delivery and discussions were conducted through ZOOM. In addition, recorded videos/YouTube links were shared relevant to each experiment as demonstrations. Pre-lab questions helped in guiding the labs and to direct students to the experiments. Students were asked to write a laboratory report for each laboratory session as usual, including all the components as they used to do. Data sets were given when calculations and analysis were required to perform.

3 REVIEW OF LITERATURE

3.1 Overview

Various opinions on the delivery of online labs have been identified. An article by Loike, J. D., & Stoltz-Loike,(2020) suggests that undergraduate level science-based labs can be successfully taught online, promoting an active learning experience, but modifications are required. Due to reduced human resources and spatial requirements, online laboratory sessions are also economical than running physical laboratory sessions (Aziz et al., 2009). As suggested by Loike, J. D., & Stoltz-Loike, (2020) activities such as reviewing literature and peer-reviewed journals, designing advanced experiments and analyzing data are a few of the key activities which needs to be included in delivering online-based science laboratory sessions.

Numerous techniques are being used to deliver STEM laboratory sessions effectively through distance learning, where virtual platforms and simulations are widely used. According to Chen et al., (2010) virtual labs and remote labs are the two approaches the online labs could be conducted. Two types of online labs available, one of which is virtual labs which are conducted through software such as Matlab/Simulink, Java Applet, LabVIEW (Chen et al., 2010). In addition, various universities in the western world have identified, proposed, applied various platforms and techniques to conduct laboratory activities remotely. These are suggested to be pursued in conjunction with online delivery of teaching, and further experimenting. Apart from the obvious benefits, these novel techniques and applications are undoubtedly important in enhancing technological literacy in terms of utilizing technological devices in education.

Laboratory sessions develop a variety of skills in the students, where online lab sessions can also use to develop those skills. For instance, collaborative learning is an important aspect in engineering education. According to Gravier et al., (2012) an innovative system has been developed to promote collaborative learning in engineering education, where users get notified of their actions in the platform and interaction with the others.

Augmented Reality (AR) is another emerging technology in the field of education (Andújar et al., 2011; Mejías Borrero & Andújar Márquez, 2012). Though AR labs are not yet widely used, they would significantly contribute in the near future. Along with overcoming technological challenges, AR labs will eventually benefit the future of education due to reasons such as their positive impact on learning, while reducing extraneous cognitive processing (Thees et al., 2020). The application of augmented reality in education is still at an initial stage (Khan et al., 2019). One of the studies conducted to investigate the effects of AR technology in developing skills in science laboratories have obtained both negative and positive comments (Akçayır, M., Akçayır, G., Pektaş, H. M., & Ocak, 2016). The usefulness of AR technology in improving the laboratory skills of the students have also been recognized in the same study (Akçayır, M., Akçayır, G., Pektaş, H. M., & Ocak, 2016). Based on another pilot study conducted on a developed augmented reality-based lab system had conveyed that further possibilities can be addressed in AR labs on online mode than traditional labs (Borrero et al., 2013). Also, based on the results obtained from another comparative study on AR labs, virtual labs, and hands-on physical labs, students show positive feedback on AR labs, where they have identified them to be beneficial in terms of user-friendliness, and flexibility (Cuendet et al., 2013).

Thus, there are a variety of current practices reported and are emerging in the field of distance education. Adapting to remote learning has many hurdles and one of the largest is engaging scientific inquiry from a distance to give hands-on training while satisfying learning outcomes and objectives. This review would give a deeper insight into those remote laboratory experiences and future potentials of the development of online laboratory sessions in STEM education, enhancing the quality of education.

3.2 Laboratory Activities Through Remote Learning Technologies

This section provides details and the experience obtained delivering general chemistry laboratory course through remote teaching. Laboratory component in general chemistry is considered as a difficult area to be delivered through remote learning due to several reasons.

This study has provided various aspects in delivering the course through remote learning along with suggested future improvements.

Due to the emergence of the COVID-19 pandemic situation laboratory sessions had to be shifted into online mode. In the online mode, premade instructional videos have been utilized in replacing in-person pre-laboratory lectures based on prior feedback. Instructional videos designed to promote self-paced learning, including embedded quiz questions, and utilizing interesting teaching strategies have undoubtedly identified as beneficial for the students. Interactive laboratory videos had also been utilized allowing the students to engage in the experiment on the experimenter's shoes along with facilitating all possible ways aiding to visualize the experiment. Another strategy that had been used was the incorporation of hybrid laboratory reports where reasoning for experimental protocols had been included, allowing the students to enhance intuition and critical thinking (Wang & Ren, 2020). Initially, the transition to remote learning had been difficult for the students. Having said that, according to the feedback from students, interactive laboratory videos, as well as the questions in the hybrid laboratory reports, had been helpful to overcome the difficulties. Based on the feedback taken at the end of the course, conducted through remote learning, the majority of students had agreed or strongly agreed, that they enjoyed the overall lab experience and expressed that they learnt a lot as well. Based on the student suggestions, the degree of difficulty in the questions to be addressed in the hybrid reports, and the lengthy reports had been identified as the aspects which needs to be improved (Wang & Ren, 2020).

Overall, the study expresses that more improvements need to be done for remote learning delivery procedure. One of the future key improvements identified as, holding teaching assistant guided discussion sessions through virtual labs for each group comprising of about sixteen students. After that sub grouping students to further discuss the initial part of the hybrid laboratory report lab activities fostering the interaction had also been proposed to be carried out as one of the improvements in the plan (Wang & Ren, 2020).

Further utilizing computer modeling software has also been suggested as a future key improvement. Conducting hybrid laboratory sessions allowing students to perform experiments had also been suggested as a future improvement. Laboratory activities alleviating loneliness and promoting peer collaboration had also been suggested. Also updating the existing video repository with newer videos and introducing inquiry-based virtual experiments had also been identified as useful in the future improvement process. In summary, though physical laboratory sessions cannot be replaced through remote learning, various types of strategies and techniques can be used to enhance students remote learning process during pandemic situations such as the COVID-19 situation (Wang & Ren, 2020).

Another research study had focused on how short case-based learning is utilized in delivering remote-teaching online laboratory for biochemistry labs. The short case-based learning technique had been applied for online biochemistry labs exhibiting numerous benefits such as enhancing the student perception and achievement, aiding the retention of information etc. This case-based learning approach application, contains four major steps including, "Plan, Organize, Implement and Evaluate". In the planning step, the objective of the particular application had been designed utilizing Bloom's taxonomy. In the organizing step the students had been grouped, and the expectations had been explained. In the implement step, questions had been provided to each group. In the final step, more challenging questions had been

provided to further assess students' understanding and evaluation purposes as well. Though the application had been identified as challenging at the beginning, with experience it had become much easier. Further they have identified that ten questions for a particular case study, and five students per group as the most feasible arrangement to be implemented. The questions had been designed to move from simple to complex based on real-world scenarios. The study based on case-based learning had shown successful results in various aspects, proving its potency (Thibaut & Schroeder, 2020).

3.3 Laboratory Activities Through Virtual Laboratory Platforms and Techniques

Virtual laboratories are one of the most common methods of delivering laboratory experiments in online education. The experiment discussed herewith, summarizes a research project which was conducted to investigate the effectiveness of virtual laboratories for delivering a biology course for undergraduate level students. The study had conducted with the participation of 19 students, where the students had to design an experiment using computer simulations in virtual laboratories. After obtaining the experimental data, the understanding of materials had been assessed through laboratory-specific questions. Also, students had been directed to participate in traditional laboratory sessions as well. The students' perception of the study had been obtained at the end of the semester, after conducting overall ten cognate virtual and traditional labs, five laboratories for each. As shown in Figure 1, more than half of the participants have either agreed or strongly agreed that they think they have learned more biology concepts participating in virtual labs compared to traditional labs (Flowers, 2011).

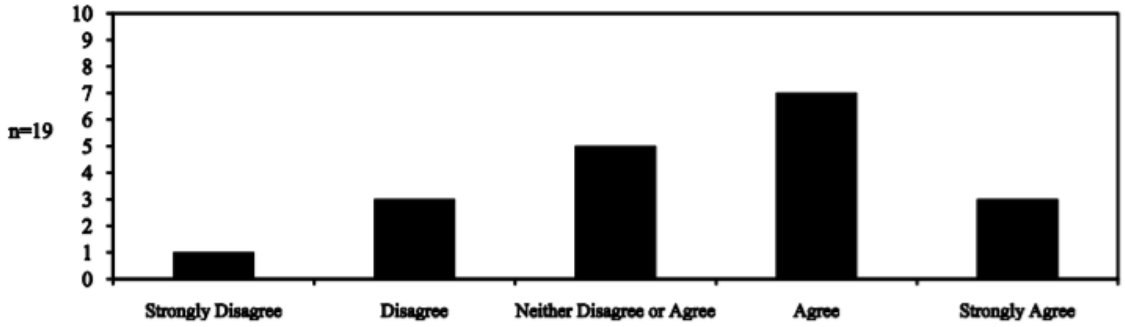

Figure 1: Statement: I think I learned more biology concepts participating in virtual labs compared to traditional labs (Flowers, 2011).

Further, the study shows below 26.32 % of the students have strongly agreed whereas 21.05 % agreed cumulatively, exceeding the % disagreement, on that they have learned more on performing biology laboratory techniques in virtual laboratories compared to traditional laboratories.

Hands-on experience is difficult to replace using virtual labs. The fact that the experience in handling equipment cannot be easily replaced through virtual labs, had been proved in the study as the majority of the students have disagreed that they have learned more on equipment through virtual labs compared to traditional laboratory sessions.

As the below Figure 2 expresses, cumulatively over half of the students preferred participating in virtual labs compared to traditional labs as well.

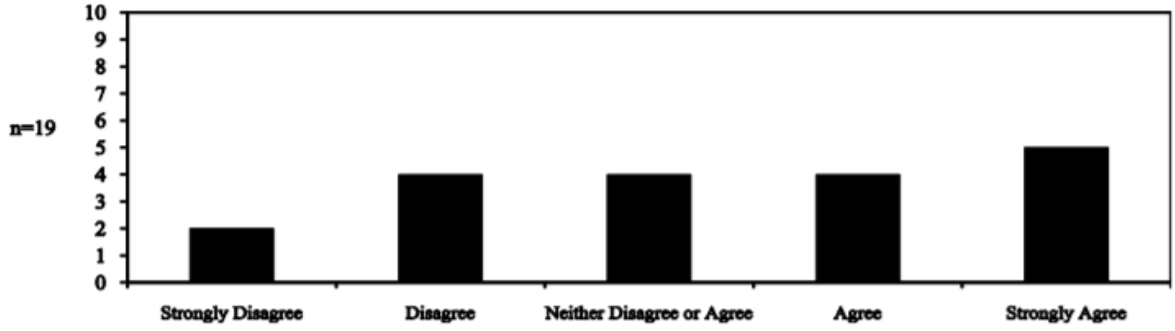

Figure 2: Statement: I think I learned more about how to perform biology laboratory procedures in virtual labs compared to traditional labs (Flowers, 2011).

Knowing the fact that the majority of student's prefer virtual labs over traditional labs suggests that the future of online laboratory delivery is promising (Flowers, 2011).

A study had been investigated hands-on experience and virtual laboratory experience for natural science and physics. Physics being innately an experimental science, laboratory component in physics education is considered as integral for undergraduate (American Association of Physics Teachers, 2014). According to their study, knowledge construction, modelling, experiment designing, development of technical and practical skills, data analyzation and visualization and proper communication are the major areas to be focused on in achieving learning outcomes in physics education. In summary, undergraduate level physics laboratory is an integral part of the undergraduate level. Thus, the effectiveness of delivering hands-on labs as virtual labs is assessed in another study conducted by Darrah and co-workers. Their study had evaluated the hands-on laboratory experience and virtual laboratory experience through comparison, by utilizing 224 students from Auburn and Penn State Universities.

The virtual lab utilized in the study consisted of four main stages. Input had been provided to the design by physics experts in the first stage, whereas lab development had been carried out in the second stage by engagement of experts and designers of software and the lessons. In the third stage user interface, pedagogical approach and the content had been evaluated by another group of experts in physics. In the final stage, the labs had been reviewed by the students who enrolled in introductory college-level physics. Also, those group of students had used in assessing student learning as well. The Virtual Physics Lab^{TM} software used comes with the Five E cycle, which consist of laboratories having content, integration of technology and formative assessment planned sequentially (Darrah et al., 2014).

Each laboratory consisting of the basic information, concepts and objectives, pre-laboratory questions, equipment list, demonstration videos, post laboratory questions and a quiz, where virtual laboratory experiment containing real-time 3D simulations through simulated equipment featured as the primary component. The study had concluded that these virtual laboratories posse various advantages. One of the advantages featured is that their availability for the students who could not participate in the laboratory session. The study had shown that neither virtual labs nor physical labs had been identified as more effective in terms of

delivering the concepts of the experiment for the students. Also, the study had suggested that some of the hands-on laboratories can be effectively replaced by virtual labs. In conclusion, based on the findings of the study conveys that both universities that participated in the study had shown that the virtual labs were as effective as traditional physics labs which were carried out providing hands-on experience.

Another study had been carried out exploring the efficacy of virtual laboratory sessions through the students' perception who were engaged in a one-month intensive laboratory training course. Along with being the first virtual laboratory experience for the students, a survey questionnaire had been used to identify the student perception regarding the traditional and virtual laboratory sessions. A system containing simulated experiments had been used by the students in the study. The project had allowed the students to perform virtual experiments remotely at any convenient time using either via a remote machine through the internet or a local machine.

Then a questionnaire containing both open-ended and close-ended questions covering various aspects from general demographic questions to students' perception and students' usage of laboratories had been inquired and surveyed using fifty engineering students. Based on the survey results and comments, the research findings have shown the addition of virtual laboratories outside traditional laboratory hours have enhanced student learning. As shown in Figure 3 the study further expresses that 48 % of respondents had strongly agreed or agreed to statement that the virtual labs are more suitable to senior students than first-year students.

Survey Items		**%**				
I found the traditional laboratory workshop:	**Sample (n)**	**SA**	**A**	**N**	**D**	**SD**
Easy to operate	47	8.5	49	34	8.5	0
Easy to understand	50	8	48	36	8	0
Flexible to use in relation to time and place	50	6	46	34	8	6
Stimulating	50	12	38	42	6	2
Satisfying	50	12	40	40	8	0
I found the virtual laboratory workshop:	**Sample (n)**	**SA**	**A**	**N**	**D**	**SD**
Easy to operate	49	12	45	37	4	2
Easy to understand	50	10	42	38	6	4
Flexible to use in relation to time and place	50	10	40	40	8	2
Stimulating	50	8	44	38	6	4
Satisfying	50	6	42	42	6	4

Survey Items	**Sample (n)**	**Strongly agreed/Agreed %**	**Neutral %**	**Strongly disagreed/ Disagreed %**
I think Virtual Lab Workshop is more suitable for senior students (2nd year students and above)	50	48	48	4
I think that I learn and understand more in a virtual lab environment than a traditional lab	50	40	46	14
If I can use virtual laboratory workshop over the Internet instead of physically staying in a laboratory, I (will/will not use)* the virtual laboratory workshop outside lab hours for distance learning.	42	**Will**		**Will not**
		81		19

Figure 3: Percentages of students' degree of agreement or disagreement (Chan & Fok, 2009).

Furthermore, 81% of the students who had accepted, for distance learning, will use virtual lab workshops outside lab hours, if they can use the workshop virtually instead of physically engaging in a laboratory.

One of the students who participated in the study had mentioned that he did not participate in the traditional EEE labs, as traditional labs are not required and appropriate for a computer scientist. According to the obtained comments, another student had been identified who was not even aware of the processes that occur in virtual lab sessions. Conversely, some of the participated students had commented that virtual labs can be used to familiarize theories, and that both practical and virtual labs are useful. Some students had mentioned that practical labs need to be conducted as the basic principles are learnt through them. In addition, another student had mentioned that both the virtual lab sessions and the physical lab sessions are important as well. Though replacing the traditional labs with virtual labs is not a feasible solution, the study suggests that enhanced study can be facilitated through virtual labs. The study has expressed pedagogical advantages and disadvantages of virtual labs as follows shown in Table 1.

Table 1: Projected pedagogical advantages and disadvantages of virtual laboratories (Chan & Fok, 2009)

Advantages of virtual laboratories	Disadvantages of virtual laboratories
Enables laboratory experience at any time and anywhere	Discourages students from learning the physical instruments and real devices
Allows students more opportunities to practice experiments, particularly for those that may not be easily replicated due to resources, time and safety issues	Remote access discourages direct collaboration and interaction amongst students and teachers
Provides a safe workshop environment without the need for supervision	Increased risk of plagiarism in assessment
Enhances students' enthusiasm for learning through interactivity	Physical, practical skills that are expected of an engineer are not honed
Increase students' IT literacy	
Many industries are using simulation software for testing and development and students are getting a flavour of this	
Contact laboratory hours are scarce. Students can use virtual laboratories to reinforce the theoretical concepts they learn in class	
More cost-effective, particularly for complicated circuits that may require a number of trials and errors	
Can provide attendance and other student information	
Online feedback and assessment can be made readily available	

Further, the study suggests that various challenging demands on the field of engineering education can be mitigated through virtual laboratories. Also, the study confirms the importance and the need for further research on online learning to improve delivery and student learning process.

Another research study discussed here evaluates the virtual laboratory sessions in the field of mechanical engineering. Both faculty members and students of mechanical engineering branches of different educational institutes had been a part of the project. The session had been carried out for the faculty as a faculty development programme (FDA) throughout a period of one week. The faculty FDA training sessions had consisted of taking measurements, remotely triggered VLA's and simulations on fields such as fluid mechanics, metallurgy and materials engineering, machine kinematics. Feedback had been given on the final session day and analyzed. The students had performed the experiment through virtual laboratory sessions for fluid mechanics through VLAB2020 system. Then videos on real laboratory experiments had also been shared for the comparison of virtual and real experimental results. Finally, a questionnaire had been provided to the students to obtain feedback (Kapilan et al., 2021).

The majority of the faculty members had denoted that they have improved in terms of knowledge and skills. As it can be seen from Figure 4, based on the analyzed data, 96 % of the students had been happy about the performed virtual laboratory experiments, whereas 89 % had mentioned that virtual labs aided in self-learning as well.

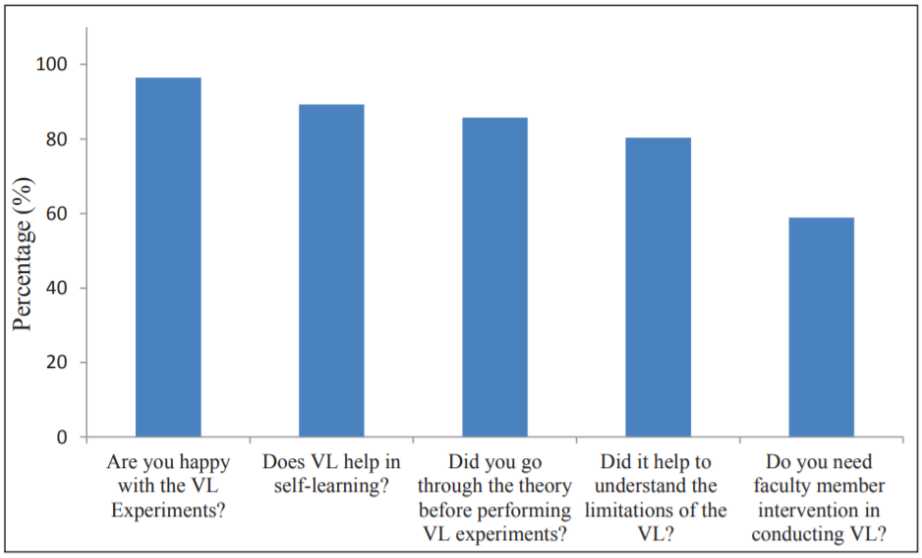

Figure 4: **Students' feedback part 01 regarding the Fluid mechanics Virtual Labs (Kapilan et al., 2021)**

As it can be seen in the above Figure 4 the majority of students (86%) had gone through the theory parts before conducting the virtual experiments. As linking the theoretical knowledge with the practical experiments are extremely important, students' prior preparation could have been a positive effect on the students' learning process as well.

Further, as the study shows the students are comfortable in participating in the virtual labs, where a few students had mentioned that they had network connectivity issues in participating the virtual labs. Moreover, as Figure 5 shows more than half of the students had selected that quality of learning increases from the virtual labs and virtual labs needs to be introduced into the curriculum also (Kapilan et al., 2021).

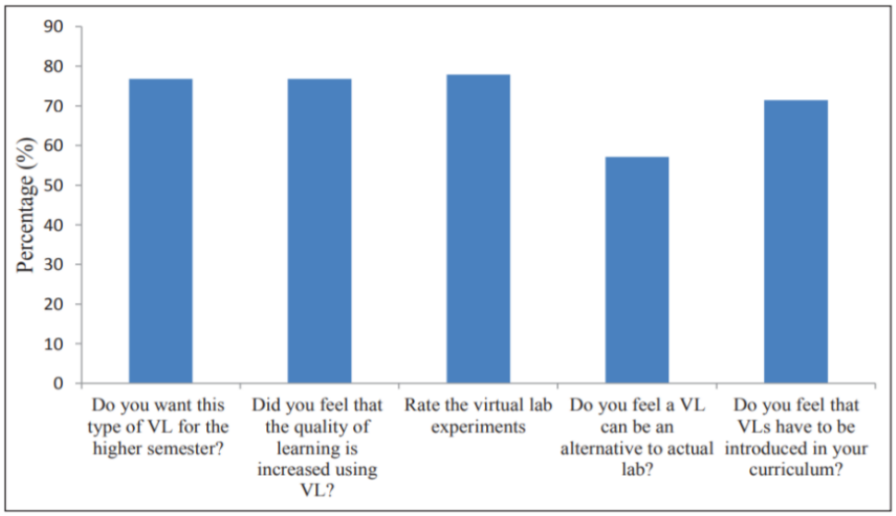

Figure 5: Students' feedback part 02 regarding the Fluid Mechanics Virtual Labs (Kapilan et al., 2021).

According to Figure 5, the majority (77%) of students had selected that they require virtual labs for the higher semesters also. A considerable number of students (57%) had expressed that virtual labs could be the alternative for the delivery of the laboratory sessions during the SARS-CoV-2 pandemic situation as well. Overall, the feedback had conveyed positivity towards the virtual labs among both the students as well as the faculty members. The study has shown that the virtual labs had been able to enhance the understandability conjointly enhancing the student learning process as well.

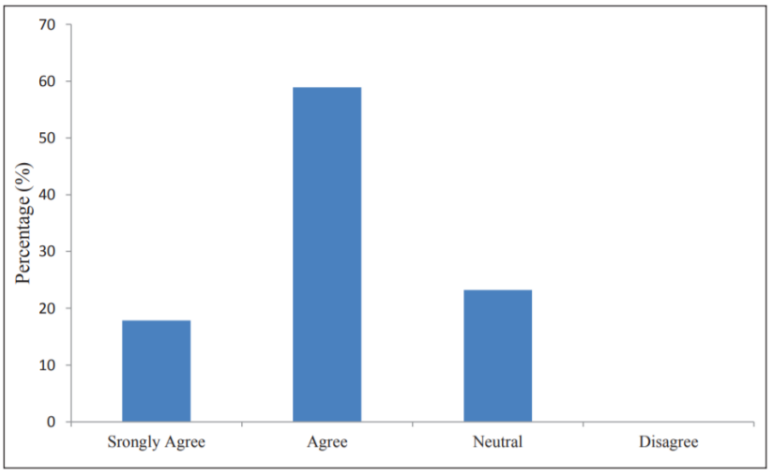

Figure 6: Student feedback regarding the learnability of the VL Experiments (Kapilan *et al.*, 2021).

The above Figure 6 shows student opinion regarding learnability of the VL Experiments, which had been asked through the question whether it had been easy to learn and perform the virtual experiments. As the results show 18 % had strongly agreed whereas 59 % had agreed to the query. Though 23 % of students had been in neutral opinion, none of the students had disagreed. As the study suggests the students had been happy with the VL as it helps in learning, and it is also student centric. Also, the VL can be comfortably performed by the students on their own time as well. Internet connectivity issues, the absence of an interactive learning environment, lack of the required devices to carry out the experiments are a few issues identified in the study. Though a few issues exist, the overall impression and importance towards the virtual labs had been identified through the study (Kapilan et al., 2021).

The research study discussed below is also utilize virtual equipment and laboratories, in science and engineering education. This research study had implemented e-learning platforms and virtual laboratories for the second and fourth academic years at universities in several countries including the United States of America, United Kingdom and Russia, focusing on subjects such as bio manufacturing, chemistry and material sciences. In terms of laboratory education, laboratory assignments and virtual equipment had been used for authentic online experiments, prior preparation for actual labs and to assess the capability of practical problem solving and actual equipment handling as well. Based on research findings and meeting the student requirements, the virtual laboratories and e-learning activities had been developed through a platform named ATeL - Advanced Tools for e-Learning.

The core of the virtual labs had been based on highly interactive simulations whereas, designing real learning scenarios had been reproduced through solid science or mathematical models integrated environments. To achieve the particular learning outcomes, customized virtual experiments which were self-directed had also been introduced into the systems. Simulations and techniques enhancing students learning process achieving learning objectives was a major aspect in those systems as well. Based on the feedback of the students, it had been identified these lab sessions have been aided in the visualization of processes. The study shows that the practical assignments which were impeded due to various reasons could also be performed through e-learning tools. Various virtual labs have also been effective in terms of time-saving, enhancing student confidence, and bridging the gap between practical experiments and theoretical knowledge (Cherner et al., 2020).

3.4 Laboratory Activities Through Augmented Reality

Though laboratory sessions being an integral part of engineering education, performing practical experiments due to limited time available for the equipment usage among a large number of students has become a ceaseless problem. Although this issue had been addressed with regards to engineering education in the study, it can be widely observed among other fields as well. The study had focused on providing more effective experience augmenting virtual objects creating a real laboratory experience. To utilize the augmented reality technique more effectively to enhance the experimental performance, an innovative system had been used in the research study. After the development of the Augmented Reality (AR)

lab model, comparison had been done along with equivalent conventional and virtual laboratories. A survey questionnaire had been used to obtain feedback where the developed AR lab had been well accepted according to the students. Below Table 2 shows the evaluation criteria results obtained based on the comparison of the traditional labs, virtual labs and augmented reality labs.

Table 2: Comparison of Hands-on labs, virtual labs and Augmented Reality labs (Odeh et al., 2012).

#	Survey item	Hand-on lab	Virtual lab	AR lab
1	Easy to use	72%	68%	86%
2	Easy to understand the concept theory	80%	76%	78%
3	Available for enough time	44%	82%	84%
4	Satisfying the knowledge theory	80%	68%	80%
5	Safe environmental for student.	52%	90%	90%
6	Progress new skills	76%	74%	80%
7	Teamwork's lab. is encouraged	76%	50%	56%
8	Comfortable physical place	66%	82%	86%

As it can be seen in Table 2, the AR laboratory compared with its hands-on labs and virtual lab equivalences, had been identified as superior regarding the easiness of its usage. The same type of behaviour had been identified in physical spatial arrangement, the progress of novel skills and availability of time as well. Overall, the developed AR lab, through overlaying live video streaming with the application of subsidiary virtual objects had been a successful approach in engineering education.

4 RESULTS

This creation and implementation of the online environment to conduct laboratories is a new initiative in Sri Lankan universities due to the sudden transition as a result of the COVID-19 pandemic. Hence, a survey study was carried out at the Sri Lanka Technological Campus (SLTC) to better understand students' perspective of this new normal remote laboratory education. Our survey study constitutes the first step in determining the effectiveness of these online laboratory resources in aiding the preparation of students for the laboratories.

Overall, the survey participants thought that remote laboratory sessions are the best option available considering the unforeseen pandemic. In response to the question "Considering the current pandemic situation, online laboratory sessions are the best option available to conduct the labs." More than 50% either agreed or strongly agreed in all degree programs (BSc Hons in BioSystems Engineering, B. Tech Hons in Agricultural Technology and BSc Hons in Information Technology in Software Engineering) as shown in Figure 7.

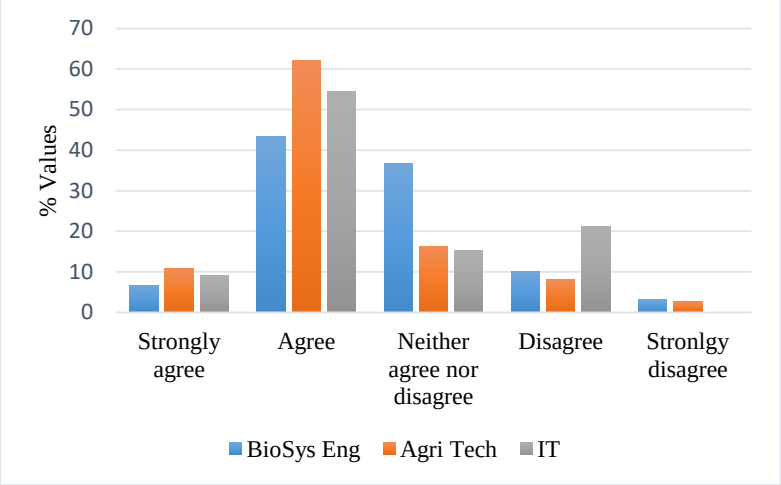

Figure 7: Student response to the survey question "Considering the current pandemic situation, online laboratory sessions are the best option available to conduct the labs"

According to the survey results shown in Figure 8, above ~50% of students were comfortable and pleased to know that they are coping up with remote learning tools such as LMS and Zoom. Proper guidance and assistance need to be provided for the small percentage of students who require additional support.

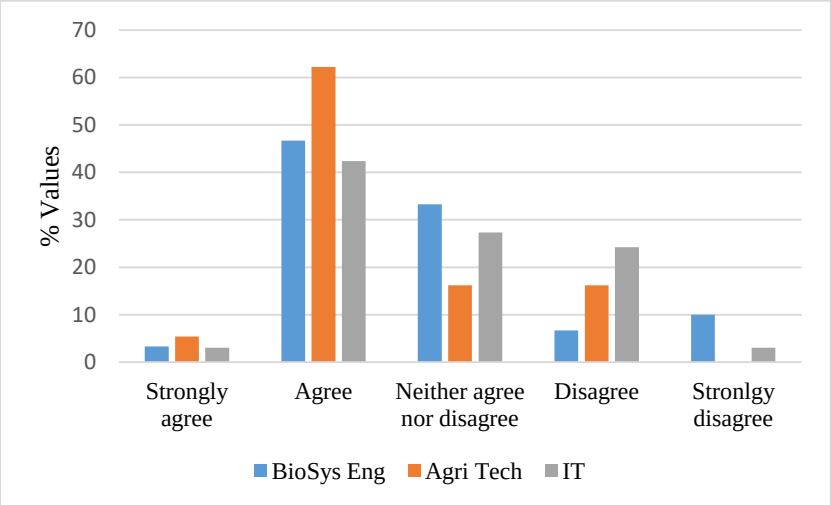

Figure 8: Student response to the survey question "How comfortable and easy to use remote learning tools"

Due to the self-isolation protocols of COVID-19, students learning environment could be disrupted in many ways and it is clearly depicted in survey data acquired in Figure 9.

Only less than 10% appear to have a very peaceful studying environment while the environment is not peaceful at all for 6%.

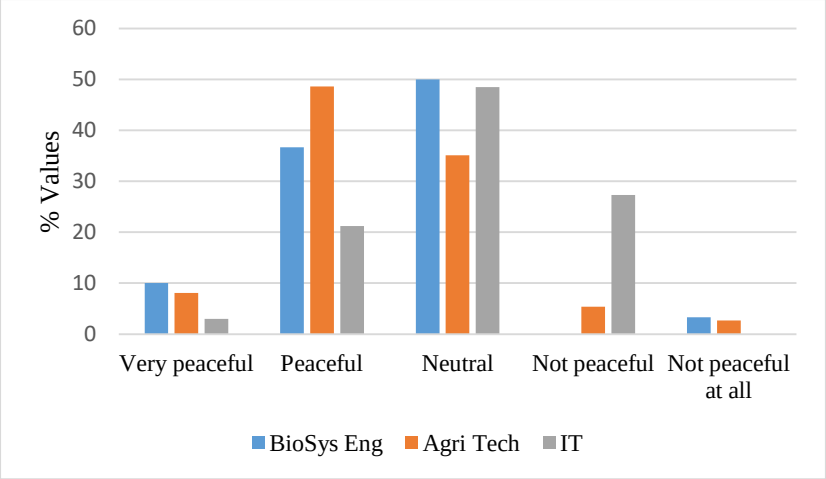

Figure 9: Student response to the survey question "How comfortable and easy to use remote learning tools"

Students much appreciated that they were able to acquire knowledge while staying at home and adopting to learn from home environment and therefore, students considered as a fruitful utilization of time during the pandemic. However, students strongly believe (BioSys 50%, AgriTech 32.4% and IT 24.2%) that the physical laboratories as an essential component as shown in Figure 10. Even the IT degree students believed that conducting laboratories are an essential component although most of their activities and tasks based on computer-based online labs.

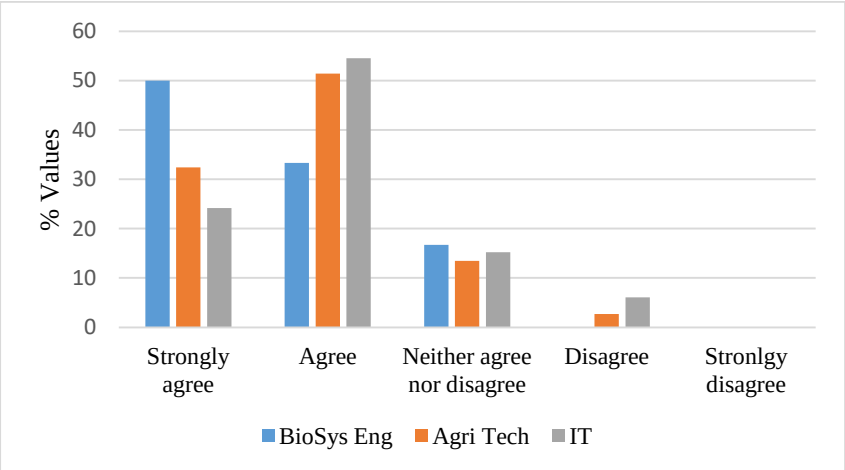

Figure 10: Student response to the survey question about "learning new things even while at home"

5 DISCUSSION

The concept of the remote lab is not very new to the world. It has been a practice in technical education especially when the student number is uncontrollable size (Christian et al., 1999). However, universities throughout the world had to take a sudden move to remote teaching and assessment since mid-March 2020 with no on-campus activities permitted according to COVID-19 preventive control measures imposed by the WHO.

Based on the analysis of survey questionnaire data, students were not very much satisfied with interaction through ZOOM during online laboratory sessions. Therefore, attention is much needed to use the virtual platform more interactively. For instance, the incorporation of more discussions and interactive sessions through breakout rooms to work as groups on a few tasks may help.

Students have communicated with the lecturer typically weekly and or whenever they needed assistance. Furthermore, students were satisfied and reasonably happy about the availability and accessibility of the lecturer. Students believe that they could stay focused long enough to complete their lab assignments at home. However, students may start to feel isolated due to the lack of active engagement in the virtual environment. This may cause some of them to disengage during the online sessions leading to limited understanding when it becomes difficult to ask questions and clarify on a real-time and ongoing basis.

In reference to the question regarding self-studying, the responses varied widely. This could be partly because these selected groups were fresh first-year students. Hence students are not much familiar with studying on their own referring to additional resources. Similarly, there can be students who do not enjoy self-studying due to their own reasons and nature and they may prefer to work as study groups.

A peaceful learning environment is one of the critical requirements accompanied by learning tools and resources (Gamage, 2020). Apart from the physiological surrounding, student satisfaction with necessary digital resources (laptop, mobile phone etc) to fully engage during remote lab sessions is crucial with stable network connections. And these requirements are not up to the satisfactory level in many areas where students come from. None of the students who took part in our survey satisfied with the stability and reliability of the internet connection to fully engage during remote lab sessions further supporting to the studies reported in literature (Gamage, 2020).

Survey analysis data further suggested that online lab discussion sessions helped them to be able to understand the objective of the experiment, to be able to identify required labware, and also to identify the procedure to perform an experiment. In their opinion, completing the online labs have helped them to perform better in lecture quizzes and exams as well.

Nevertheless, student's do not get enough opportunities to collaborate with other student's/ group members as a part of the remote lab like in the case of a physical lab. They further claim that they have very much limited opportunities for peer learning through remote lab. Especially in the engineering disciplines, students appear to be very uncomfortable to go and work in the industry with remote lab experience as a part of their degree.

However, students much appreciated that they were able to acquire knowledge while staying at home without wasting their time. But we have to understand the fact that laboratory training not only provides practical knowledge but also contribute to developing many other important aspects of education such as creativity, critical thinking and problem-solving skills of the student(Daud & Razali, 2016). Hence, it appears that there's a considerable gap in bringing remote laboratories to meet up to the standards of physical laboratories if universities plan to depend solely on remote laboratories.

Even though, the virtual laboratory is considered as an emergeing trend to offer a safe environment enabling convenient platform to deliver practical training, still virtual laboratories could discourage direct interactions and transferable skills such as team-work and communication skills and collaborative activities that can be appreciated in traditional laboratory training (Gravier et al., 2012). Physical laboratory set up provides additional benefits to the students that are lacking in remote laboratory setting. To name a few, the ability to interact with peers to discuss ideas/approaches and to solve problems together greatly help for the development of social skills and professional work environment (Grout, 2017). Hence, future research and potentials lie in a wide range of areas in developing remote laboratory approaches to meet the essential requiremnts.

6 CONCLUSION

The critical importance of laboratory education and practical training in many educational fields has been emphasized in many research articles. Laboratory practical knowledge with hands-on experience is essential to understand theoretical concepts better. Remote laboratory approaches are considered to be the best option available considering the pandemic situation. However, the development of remote laboratory tools and technologies to apply in various engineering, technology and many more fields is highly encouraged enabling the capability to perform experiments in real-time.

Based on the literature search, we were able to identify the various approaches followed and attempted to get the best out of remote learning. New avenues have also been proposed for the further development of remote laboratory in terms of improving the extent of interaction among students.

Being these online laboratory practices are widely emerging in STEM education at the university level, in a case-based study conducted by Chan & Fok, (2009) suggests that further research needs to be carried out to identify how the online practice can be exploited to enhance the overall teaching and learning process.

Literature highlights that the instructors' contribution is also undoubtedly important in online laboratory delivery (Simon et al., 2020). Furthermore, a study conducted by Flowers (2011), suggests that future work needs to be conducted to identify whether the interaction with the instructor and the student collaboration effect on the student performance as well.

When considering the use of the remote laboratory in undergraduate level education, the user accesses the experiment from a remote location and has a virtual presence in the laboratory including the required instruments and the setup. This concept is feasible since experiments were well practiced and expected results were already known to program the particular experiment. These type of virtual labs consisting of 3-D simulations (e.g Praxilabs) provide a

real-time experience feeling similar to the student working inside the lab and getting observations and results as the experiment proceeds (Srivastawa et al., 2020).

Most of the time remote laboratory practices fail to provide adequate resources when it comes to real research work including high-end research activities and innovations conducted by graduate students, post-docs and many other research scientists. For instance, one of the many fields include research studies on pathogenesis-related diagnostic and therapeutic innovations considering the COVID-19 pandemic itself where it requires biologically active live samples in real-time (Srivastawa et al., 2020)

Moreover, research studies continue to incorporate digital and smart software and apps to provide better services in terms of assistive technological improvements and user-friendliness. Such improvements include in the area of speech recognition and screen reading software (Dragon speech recognition, Windows narrator), smart-pens that could record everything that is heard, said and written (Liverscibe Smartpen) (Grout., 2020).

In the physical mode of delivery, visual presence helps to drive the attention, accountability, and engagement of the learners. Whereas, in a remote laboratory setting an individual requires to be self-disciplined and self-motivated and to be able to work alone. Therefore, considerable practice would require especially for the fresh undergraduates to adapt and familiarize themselves with the virtual environment. Further-more developments in technology will address to introduce laboratory interfaces that could be customized based on the experimental requirements as well as by means of receiving experimental results and data etc.

Despite the attempts in achieving the learning outcomes and basic laboratory skills, further research needs to be conducted to identify how effectively the teamwork skills, are gained by the students through online laboratory practices as well.

A hands-on experience in certain subject disciplines cannot be solely delivered through online laboratory activities, further research needs to be conducted to identify whether any type of novel techniques can be applied in those laboratory sessions, and how universities compensate for the quality of education through online laboratory activities.

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From the sports field to the classroom:

The social role of an elite sports team in the periphery

Orr Levental [11]

Hadas Brodie Schroeder [12]

ABSTRACT

National-level professional sports teams can profoundly influence teenagers involved in trials, selection, and participation. In this study, we examined the ability of a successful local soccer team to motivate high school students to improve their academic achievements and behavior. This research used interviews and focus groups with educators from two peripheral towns, one Arab and one Jewish. The texts were qualitatively open coded and constructed into major themes. We found that soccer teams with an educational and societal agenda and solid cooperation with the local schools would influence students to improve their academic achievements and behavior. Sports teams can play an essential role in conveying educational and societal values to teenage high school students.

***Keywords**:* Sports, Academic achievements, Periphery, Education

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1 INTRODUCTION

In 21st century Israel, the educational gaps between periphery and center are widening each year. That is, both in eligibility for a Bagrut (matriculation) certificate and in the percentage of high school graduates enrolling in higher education facilities. (Svirsky, 2012). Because the educational system is one of the major means facilitating social mobility and equal opportunities, it is important to examine different options for supporting this system in order to bolster and strengthen the outlying areas. The goal of improving the educational system is to enable all students to achieve educational and moral success as a springboard for self-fulfilment (Getz, 2008). One solution considered to bridge these educational gaps is professional sports. Spectator sports constitute one of the most popular leisure activities in Israel, with professional football leading all other sports. The economic, social and psychological influences of sports have been examined frequently in various contexts. Sports also have far-reaching educational potential, particularly in places where sports are the leading and often the only expression of popular culture, for example; in the towns and cities of Israel's social and geographical periphery. Sports activities dominate many localities in the periphery, among other reasons due to their contribution to community identity, health, sense of place, social relations and human capital (Marlier et al. 2015). Hence, by understanding sports values, skills and influence on the younger generation, the educational system in the periphery may be able to leverage the advantages of sports for its own objectives. In addition, understanding the influence exerted by a leading sports team can advance this field of research and contribute directly to developing educational programs in the context of sports that support learning and academic achievement in the periphery.

The objective of the research on which this paper is based is to understand how educators in the periphery perceive the role and educational significance of a leading sports team based in an outlying locality. The paper analyses the educational role of a professional football team based in the periphery and clarifies the three-way relationship between education, periphery and sports. It discusses the educational values manifested in this singular case of a leading sports team based in Israel's periphery. The research adopted the qualitative approach, focusing primarily on a case study of two localities in Israel's geographic and socioeconomic periphery that are home to leading sports teams (Sakhnin and Kiryat Shmona). In both these cases, two research tools were used: semi-structured in-depth interviews and focus groups using the WhatsApp Messenger mobile messaging app platform. The interviewees chosen included senior educators from the examined localities, and the focus groups comprised in-service and pre-service teachers working in the local schools. The results underwent content analysis by coding into categories and themes.

2 THEORETICAL BACKGROUND

2.1 Educational gaps between center and periphery

In Israel, there is an opportunity gap between different population groups in their eligibility for a Bagrut certificate, a prerequisite for higher education. This gap is especially important factor because of the correlation between higher education and the equality of the working market (Yirmiyahu et al. 2017) According to Svirsky (2009), this gap is evident primarily among students from localities in

Israel's periphery who must contend with distinctive barriers not faced by students from the center (see also Smilansky and Nevo, 2018). In recent years, the number of students in Israel's periphery who successfully finished high school has increased slightly. Nevertheless, there is a major difference in the percentage of those continuing to higher education between the periphery (0.7%-1.3%) and the center (30%) (Dagan-Bozaglo, 2007). According to Gofen (2009), this education gap emerges from the fact that the residents of the periphery lack academic role models, parental support and information about higher education and its importance. Shai (2000) contends that it is possible to develop the educational aspirations and abilities of those from the periphery by means of dedicated educational programs. In other words, alternatives can be created to provide students with educational tools and values that will serve as a future basis for their integration into higher education. Brodie Schroeder (2009) suggests that most of those of peripheral background who succeeded in academics stated that their parents did not play an important role in their success, in contrast to students from high socioeconomic backgrounds (e.g., see Strayhorn, 2006). In the case of factors that motivate success and success factors in general, family and socioeconomic status are less important than alternatives such as role models and the attributes they offer: perseverance, determination, succeeding in the periphery and others. These attributes also characterise local elite sports teams that are based in peripheral localities and compete on an equal basis with teams from central Israel. Hence, these teams have the ability to initiate educational and motivational processes among the local population.

2.2 Sports, community and individual development

Professional competitive sports as well as popular amateur sports promote a variety of values, such as self-control, physical fitness, teamwork, organization, attentiveness, reciprocity and more. The personal development of those engaged in sports is influenced by learning opportunities and social and psychological aspects of the environment (Côté, Baker, & Abernethy, 2007). Mertinek & Hellison (2016) suggest that sport and physical education extend beyond developing motoric skills or expanding knowledge on healthy lifestyle. According to them, sports can be a tool for teaching social and personal responsibility. This view is also shared by Drummond and Pill (2011) which argue that sports and physical education can be the most appropriate platform for learning other values and skills detached from the functionalist goals of physical movement. Another advantage of sports is in serving as a platform for coping with social aspects and for developing opportunities, particularly for weakened population groups (Skinner et al., 2008). It should be noted that although the field of study of potential social benefits for youth participating in sports is well researched, some topics such as cognitive and academic development, demand further empirical research (Bailey, 2005). According to Bailey (2006) another meaningful factor of potential individual development are the interaction between the young participants and their coaches, teachers and parents. Similarly to the importance of adult role models in academic success.

This team devotion is not dependent upon any prior conditions apart from the very fact that this is a sports team. But the devotion can be enhanced when there is a special connection between the team and the local community. Richelieu (2003) notes that athletes' community involvement by visiting hospitals, signing autographs and visiting commercial and educational centers indicates that the team is willing to be an inseparable part of the local community. This type of community involvement serves to increase fans' support for the team and the players and hence their sense of belonging. The local team thus becomes a brand with a social conscience (ibid.). The sense of community between the team and its fans

and the fans' identification with the team can be nurtured through frequent contact between the team players and representatives and the fans. A team's ongoing involvement in its urban community reinforces its status as a brand, so that the team becomes a part of the cultural, economic and social landscape of the city and even of the region it represents (Richelieu, 2012).

According to Pye et al. (2015), the ability of sports to represent values and sense of collectivity and to arouse these in individuals and in the local community resides in the fact that, even more than a factory or an industrial zone, a sports team changes the residents' perceptions of themselves and their city. Hence, enthusiasm and support for a professional sports team contribute primarily to a locality's emotional foundations. Levental (2013) similarly claims that especially when sports symbolizes peripherality and an alternative to the central ideology it arouses community team spirit, reinforced social ties and the creation of human capital on a higher standard. According to Hudson (1999), the connection between a local team and its location is particularly important. He contends that a team's economic impact is only felt after five years, a negligible period for the team to become essential in the eyes of the local community. In this way, the success of a sports team is a catalyst for generating support and ties to the local community, while the team's geographic location is the most important variable determining the intensity and continuation of these ties (Branscombe & Wann, 1991; Wann et al. 2017).

Yu-pu (2005) contends that the difference between urban and rural areas is most clearly and concisely manifested in the context of the development of social sports. The potential impact of sports on producing social capital is felt more strongly in peripheral or rural regions, for the most part due to involvement with third sector organizations (Skinner et al., 2008). Programs for encouraging involvement in sports that target large cities for the most part are not suitable for the psychological, social, economic and political attributes of youngsters living in rural regions or far away from large urban centres (Christensen et al, 2008). Social capital is particularly important in the daily lives of rural populations. Regional sports clubs serve as central points in their community life, and their association with the local team directly affects individuals in the community in forging social ties, becoming assimilated into the society and creating a sense of belonging (Frost et al. 2013). In this regard, Heere and James (2007) add that a sports team deliberately built around a local community is not only a means of generating group identity, but also symbolically represents the community and its attributes. These authors contend that the team merges with the community into a single entity that represents the different components comprising it, such as ethnicity, objectives, gender and geographic location.

3 METHODOLOGY

This paper is based on research conducted using qualitative methodology. The goal of the research is to understand how educators who grew up in Israel's periphery and work there today perceive the educational role of sports teams in the periphery. The use of qualitative research tools, including in-depth interviews and focus groups with the research participants, will yield a profound understanding of their worldview and their opinions of the researched

topic (Smith & Flowers, 2009). In addition, in this study we focused on two localities in the periphery as a case study. We chose to focus on the northern city of Kiryat Shmona, located at Israel's geographical and social periphery. Kiryat Shmona is home to an elite football club that plays in Israel's Premier League (as of the writing of this paper in the 2019/2020 season) and that won the league title in the 2011/2012 season. We also chose to focus on the Arab city of Sakhnin, which is also situated in Israel's geographical and social periphery and is also home to an elite football club that plays in Israel's Premier League (as of the writing of this paper).

The research population included eleven interviewees, all of them teachers and school principals in the researched localities, and a focus group comprising five pre-service and in-service teachers who live and work in the cities we examined.

The primary Research tool was in-depth semi-structured interviews – Interviews were conducted with educators, as outlined above. The interviews were recorded, transcribed and analyzed using qualitative content analysis. The second research tool was focus groups comprising in-service and pre-service teachers on the WhatsApp Messenger mobile messaging app platform. Focus groups using the WhatsApp platform constitute a new tool that has emerged from this application's innovative technology and its popularity. For this study, we created a WhatsApp group and added five participants. We then initiated a discussion in which each group participant responded with his or her opinion, while the other participants were allowed to react.

The data was analyzed by an open coded method in two parts. First, in the early analysis the researchers organized the data to categories. Then, the researchers gathered the categories to central themes, which answered the research question. The categories that the researchers found are: The contribution of the team to the community, The negative and positive effects that the team had on adolescents, central values in a sport team, The effects of the team spirit on the community, The meaning of society's agenda of the team's owner, The connection between the team to school, The impact of the elite team in a periphery town. First, the data were analyzed by the researchers separately in order to follow the trustworthiness rules. Only after that, the themes were found.

4 RESULTS

The analysis indicated that the perceived educational role of an elite sports team in the periphery is expressed through four main themes: a) sports as the key to the world of youth; b) the social role of the team in the educational development of the local youth; c) close cooperation between professional sports and educational processes; d) the importance of the team in developing local pride and in bridging the gaps between periphery and center.

4.1 Sports team as a socialisation agent for youth in the periphery

The popularity of sports spans differences in socioeconomic status and age. Interest in sports characterises many of those living in the periphery. For many it is a major part of their leisure culture and keeps them occupied during their everyday routine as well. Among adolescents, the area of sports is even more important, for at this age they are engaged in formulating their

individual personality on the one hand and highly influenced by their peer group on the other. In this regard, one of the research participants noted that 'the young people in this city (Kiryat Shmona) become attached to the team because they are at the age when football fans decide which team to support'. Most of the sports enthusiasts among the youngsters living in the outlying localities root for the same local team. This serves to strengthen the team's ability to play a major role in the socialisation of these young people. Therefore, the local team exerts a rapid and direct hegemonic influence on the local youth. One interviewer noted: 'Because the cities are located in the periphery, the kids have fewer things to do in the afternoon than in the cities in the center. Hence, the football team is one of the focal points in the city that attracts a large number of teens.' According to another teacher, 'Football is something national and even global, and because there aren't many opportunities here in Kiryat Shmona football plays a very major role in the kids' lives.'

Another important point in youngsters' attraction to the world of sports is related to the special status attributed to sports heroes. One of the interviewees noted: 'The kids see them as role models. They want to succeed and progress just like these heroes. They understand that this is a small city and that whoever succeeds turns into an urban symbol of sorts.' This aspect is also tied to local pride and the immediate recognition these athletes receive from the small community in which they live. The physical and social proximity between the local population and the top-level athletes reinforces the ambitions of local youth and serves as a tangible example.

4.2 Educational aspects of sports

As noted, the field of sports is a major area of interest for a large proportion of youth. Hence, this field enables educators to capture the hearts of young people for it removes the barriers to their educational and cultural world. Schools and teachers can promote their educational agenda by directly and indirectly using the local team's success and its willingness to play an active role in the educational processes in the schools and informal educational settings. Yet such a connection is not obvious and requires that the local educational system promote certain values. This can take place in two ways: promoting sports values per se and promoting universal educational values by using sports as a motivating factor.

A controversy emerged from the interviews and focus groups in this study regarding the unconditional role of sports in promoting positive values. Following are some of the responses: "I could never unconditionally state that football games have a positive impact on students. Violence and curses lead to bad places and I would not like the kids to be involved in such situations." "Some players use verbal violence and sometimes even physical violence. And the kids learn this . . . ." Despite these reservations, the research findings indicate that most of the educators can point to the educational advantages of sports, deriving both from the competitiveness and professionalism of sports and from the team's social nature. Some of the values mentioned include coping with failures and disappointments, striving for excellence and accomplishments, discipline, perseverance, attentiveness, respect for others, leadership, cooperation and avoiding violence. In this context, it is important to stress that these values are not necessarily related to the world of football or even to physical education classes in school, whose value is perceived mainly in physical aspects and not necessarily in

social or personality aspects. The broad recognition of the values of sports that emerged in this research derives from the fact that the research participants are educators who examine cultural phenomena through the prism of education. This prism enables them and local educational decision makers to use the basic principles of the love of sports to promote the educational interests of the schools.

Applying students' motivation to engage in sports to educational activities constituted an additional educational contribution, carried out through organised cooperation between the school and the teachers on the one hand and the local sports team on the other. This aspect came up regularly in the interviews and the focus groups. Most supported the existing framework: "Through the combination of the kids' love for football and cooperation from the coaches, we can achieve many positive things. We can leverage this to benefit the kids and clearly integrate it into what we teach."

The cooperation between the football coaches and the extracurricular activities sponsored by the team's local youth club emerged as a major element, as did the direct contact with the teachers. Improper behavior at school affected whether a student could participate in the afterschool football club. This cooperative relationship enabled the teachers to promote their interests through the disciplinary and organisational base of the football clubs. As one of the focus group members indicated, this connection made it possible to join forces to promote, reinforce and enhance certain values.

4.3 Realising the potential – Procedural, professional and close relationship between education and sports

According to the research participants, the educational impact of an elite sports team on youth in the periphery is not necessarily significant unless two major conditions are met: One is the social agenda and the educational perspective of the owners of the elite sports team. The other is the connection between the formal and informal educational institutions and the team's staff and players.

Sports teams and players today are aware of their social importance and the extent of their influence, both because the Ministry of Sport and other associations promote social programs and also because the media frequently showcase the social contributions of sports teams. One consideration lies in the professional nature of sports and the consequent limitations on possible social involvement and integration of social aspects into the team's objectives and goals. In this regard, the team owners' agenda is important, as is their perception of their team as an essential socialisation agent that plays a major role in educating the local youth and helping the city's residents. One of the teachers from Kiryat Shmona noted: "Management and professionalism have been influenced by the shift to private ownership, and the decision to engage in education is the outcome of the owner's gradual conditioning every team naturally engages in education and values. The change is in additional community activities outside the team's regular scope of operation. For example, players from the Kiryat Shmona team are involved in distributing food to the needy, using vehicles they received from the team for this purpose.". When social and educational involvement is part of the team owners' social agenda, the team will work together with and be part of the municipal educational

system. Team owners with such a social agenda can invest time and resources in afterschool facilities at which the city's children receive help with their studies and homework.

The interviewees' responses on this point indicated that the perceived social agenda of the team in Sakhnin differed from that of the Kiryat Shmona team. In Sakhnin the social activities of the team and its players are recognised and praised. In Kiryat Shmona, the interviewees stressed the personal contribution of team owner Izzy Sheratzky, and particularly his broad involvement in the city as a whole as part of his social vision. This support is not necessarily the result of a sense of social responsibility deriving merely from the team's success and dominance in the city. In three different cases, interviewees also mentioned the name of the owner, Izzy Sheratzky, claiming that he was the inspiration for the team's social initiatives. All of this points to the educators' respect for Sheratzky and his contribution, which they all believe goes beyond his trivial obligation as owner of a sports team in Israel.

As noted, the second condition for a team to make a significant educational contribution is related to forming close ties with the local schools. The interviews show that unless the discussion is professional and directed toward strengthening ties between school and team, it is of no value. With respect to this condition as well, the cooperation is more evident in Kiryat Shmona than in Sakhnin.

In localities where cooperation is based on close and structured ties between the school and the team coaches and on shared values, the educational role of sports is seen as central and important. In this regard, one of the teachers noted: "There is a close relationship between the team coaches and the teachers in the school. The team encourages the kids to combine football with school rather than taking the place of school. If a student does not behave properly at school or does not keep up with his studies, the team coach is informed and often imposes sanctions that have an immediate impact on the students. For some students, playing on the team is what keeps them in school." One of the interviewees from Kiryat Shmona even noted that around 30% of the students at his school take part in the sports clubs run by the team. He adds: "We work in cooperation with the coach, who tells the students first to be good students and then to be good players. Cooperation between the classroom teacher and the coach is extremely important and produces immediate results." His remarks indicate that this cooperation with the team and its representatives facilitates direct enhancement of school values among one-third of the students.

Another significant point emerging from the interviews touches upon giving credit for the cooperation to the team and to the school staff. With respect to the third side of this structure—the local municipality—interviewees noted only that the municipality should work to institutionalise and encourage this cooperation by establishing dedicated organizations to promote this matter. This finding indicates that the involved individuals' personal willingness to succeed is what maintains the existing cooperation, which does not necessarily require municipal sponsorship.

4.4 Bridging the gaps between center and periphery and generating local pride

The two most significant differences with respect to the contribution of a sports team to bridging these gaps are the supply of activities offered and the location. According to the interviewees, informal educational settings in the periphery make the crucial difference. Such settings are more readily available in the cities at the center of the country. With respect to Kiryat Shmona, the interviewees also criticised the quality of the teachers (stating that the good teachers prefer to work in the center) and the willingness of the local authority to invest in developing informal education. For this reason, the sports teams and their youth divisions add to the supply of afterschool activities available to the city's youth and provide new or alternative educational settings. Sometimes engaging in sports also serves the function of a social and cultural center, thus attracting the adult population as well.

Because these two cities are relatively small—Sakhnin with 28,000 residents and Kiryat Shmona with 23,000—and relatively far from Haifa, the closest urban metropolis, interpersonal relations tend to be more intimate than in larger cities. Yet these factors also prevent the children and adolescents from being directly exposed to other places in Israel. In this regard, according to the educators interviewed for this study, the presence of an elite football team that plays in the national Premier League serves as a thread connecting the periphery to the center. According to one of the educators, "Because the team is part of the football elite, it automatically arouses national interest, especially because this is a small peripheral city. This was very powerful when the team won the championship." Another teacher stressed: "The football team is one of the major places in the city that operates on the national rather than the local level." The connection to the rest of the country by means of sports also has an impact on the locality's collective identity and sense of pride, which are accompanied by additional personal and social advantages. The matter of local pride was important to all the interviewees, both in Kiryat Shmona and in Sakhnin. One of the educators interviewed noted for example that sports serves as a tool for positive internal migration of athletes and their families. In accordance with the fans' sense of identification with their team, the students often see success in sports as personal success.

5 CONCLUSIONS

The distance between the periphery and the center is not only geographical. The distance between young people living in the periphery and those living in the center is mainly measured in educational gaps, variety of afterschool activities and exposure to different role models and future scenarios (Ben Gigi, 2011).

Several major insights emerging from the findings are likely to improve the potential impact of a sports team on the youth living in the periphery. First, in an outlying city the influence of a sports team on the local youth is greater and offers more potential than in the cities in the center. This finding goes together with the literature that says that the impact of a sport team in small cities is stronger than in big cities (Pye *et al.*, 2015).

A sports team is a source of local pride, and its team members are role models for the adolescents who show interest in them and cheer them on. In addition, hundreds of local teens play in the youth divisions of the sports club. Hence, the team is a leading means of

educating the youth for it constitutes an entry card to the team's social world and values. This finding shows what Branscombe and Wann (1991) say about the role of a role model for the teen and the importance of have players with values and social responsibility.,

Institutionalising the ties and cooperation between the various socialisation agents is essential for generating a holistic educational process. Relations must be initiated between the formal educational system (schools, teachers and educators) and the informal educational setting of the sports club so that the youth will acknowledge these ties and treat these two systems as one united educational system. This is a new finding that see the big picture and the system understanding by using this great influence of the team on the teen. Taking this advantage to improve the motivation of the teen's studying at school.

The educational/social agenda of the team's owner contributes a great deal to the ties between school and informal sports club and to the degree to which they influence one another. It is particularly important for a team to have a community social identity, where the team players and coaches are committed to making a contribution to education for social and community responsibility. In addition, for the sake of a holistic connection between school and sports club, the sports club must convey the message that succeeding in school and acquiring knowledge are important. This result says what the literature shows that a sport team of a community has a potential to educated teen. Regional sports clubs serve as central points in their community life, and their association with the local team directly affects individuals in the community in forging social ties, becoming assimilated into the society and creating a sense of belonging (Frost *et al*., 2013).

Because the sports team is an important agent of socialisation, it must recognise that it has been charged with responsibility for young people's education. Hence, it must strive for educational and appropriate behavior on and off the playing field. This finding is very interesting. There is no doubt that the owner's societal agenda is impactful on the local education. Heere & James (2007) found that the role of the management's perspective is the base for educational impact. They showed that philanthropy, cooperation and ethics are the most important factors that motivate sport team to be involved in the community. These values are an educational agenda that passes to the younger generation.

In conclusion an elite sports team on the national level can serve as a bridge that connects periphery and center and creates opportunities for social mobility. The chance for social mobility encompasses the principles of justice and equality that create a better society for us all, one in which all citizens strive for social justice and equal opportunity for success and personal fulfilment.

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Organizational Design of Secondary Aviation / Aerospace / Engingeering Career Education Programs

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ABSTRACT

The goal of this study was to identify and evaluate the underlying organizational factors of successful secondary aviation/aerospace/engineering career education programs, through application of measures traditionally associated with organizational theory. Analysis methods included factor analysis, structural equation modeling, and a review of study participants' comments to identify emerging themes for triangulation with the statistical analysis results. Participants in the study comprised aviation/aerospace/engineering career education stakeholders. Hypothesis testing results suggested that the most important factor in predicting success for an aviation/aerospace/engineering program is personal motivation related to learning. Though other underlying factors, including leadership/collaborative environment, organizational accountability, and resource availability were clearly related to perceived program success, these relationships appeared to be indirect. The paired qualitative analysis of participant comments generated themes that transcended survey item topics. Personal motivation was the most commonly recurring theme in comments, supporting the hypothesis testing result indicating its predictive strength for an organization's success.

***Keywords**:* career education, workforce development, aviation, aerospace, engineering.

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1 INTRODUCTION

Workforce needs for the aviation, aerospace, and engineering industries are projected to grow considerably over the next 20 years. The aviation industry projects a need for almost two and a half million new aircrew and maintenance employees to meet anticipated global demand (Boeing, 2019). The industry will also need engineers, aviation managers, and workers in other aviation and aerospace disciplines. The correlated supply of potential employees does not appear to be equivalent. It is imperative that quality career education programs in these three critical industries be expanded so that the demand for employees with the right academic backgrounds and practical skills can be met. While most research on educational programs focuses on student outcomes such as graduation rates or college acceptance, aviation/aerospace/engineering career education programs needed investigation at an organizational level to develop a model for sustainable success. Survey items associated with organizational design were modified to describe educational programs (Appendix 1). A combination of analysis methods: exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modeling (SEM) was applied to survey data collected from stakeholders in school-based and community-based programs. Results of the investigation defined underlying constructs associated with program success and described their interrelationships. The resulting model can be used by groups who are designing or improving secondary programs so that they can focus on developing sustainable successful organizations.

New research should continue the examination of career and technical education academies and programs but move beyond the traditional focus on school-based student outcomes such as attendance and dropout prevention, impact on grades and standardized test scores, or workforce readiness (Friedman et al., 2017; Hackmann, Malin, & Ahn, 2018; Hackman, Malin, & Gilley, 2018; Kreisman et al., 2019; Passarella, 2018). Though some recent research has focused on STEM programs (Finkel, 2016; Icel, 2018; Mohtar et al., 2019; Turner et al., 2016), these studies continued to concentrate on student outcomes with only a few (Kiliçoğlu et al., 2019; Thiry et al., 2017) investigations of educational programs at the organizational level. Recent congressional testimony (Lang, 2020) reflected current forecasts of significant aviation workforce needs, with related requirements for development of education pathways prior to high school graduation. Such pathways should be designed with dual focus on expansion of positive student outcomes and development of research-based, sustainable organizational structures.

Robledo (2013) suggested that theory-based evaluation of an organization should include an integration of ideas from each of the four quadrants of the All-Quadrants-All-Levels model. The following theories were selected for use in developing the survey instrument: Motivational Theory of Modern Expectancy-Value; Organizational Development Theory; High Performance Culture Theory; and Theory of Organizational Excellence (Figure 1). Descriptors extracted from the theoretical foundation for each of the individual theories included in the model were used to develop the survey items (Table 1).

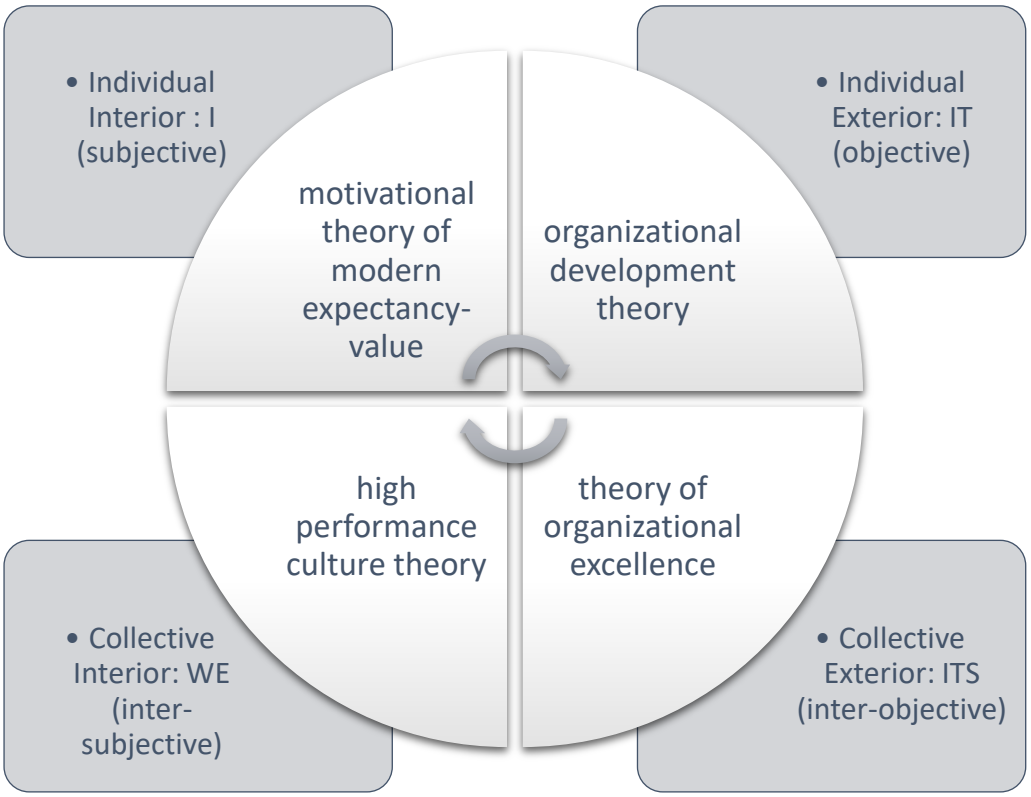

Figure 1: Theoretical Frameworks Model for Studying Organizational Design using AQAL Model

Note. Adapted from "An all-inclusive framework for the 21st century: An overview of integral theory" by S. Esbjorn-Hargens (2009 Mar 12), in *IntegralPost: Transmissions from the Leading Edge* [Webpage]. Retrieved from http://integrallife.com/integral-post/overview-integral-theory. Copyright 2009 by IntegralPost.

Table 1: Descriptors Used to Develop Survey Items

Model Quadrant	Theory & References	Components
1: Individual Interior (Personal Motivation)	Modern Expectancy-Value Theory (Eccles & Wigfield, 1995, 2000, & 2002; Eccles et al., 1993)	Expectancy – degree to which the individual believes that putting forth effort will lead to a given level of performance Instrumentality – degree to which the individual believes that a given level of performance will result in certain outcomes or rewards Valence – extent to which the expected outcomes are attractive or unattractive
2: Individual Exterior (View of Others' Participation/ Value)	Organizational Development Theory (Mulili & Wong, 2011)	Employee satisfaction Communication Team collaboration Strategic performance/vision Knowledge (information) management Growth
3: Collective Interior (Within Group Interaction)	High Performance Culture Theory (Wriston, 2007)	Collaborative environment Accountability Focus/vision Robust processes
4: Collective Exterior (Perception of Group from Outside)	Organizational Excellence Theory (Ringrose, 2013)	Principle Practice Leadership involvement Governance Alignment Leadership Customer focus Planning People involvement Customer Prevention-based process management Employees Partnership development Work processes Continuous improvement Supplier & partner Data-based decision-Resource making management Societal commitment

2 METHODOLOGY

A mixed-methods approach to data analysis, involving both statistical analysis of Likert-scale survey items and phenomenological examination of additional comments made by study participants, allowed for a comprehensive understanding of the amassed information. Initial exploration of survey item responses via frequency tables and bar graphs identified survey items that might prove problematic in further data analysis and hypothesis testing phases. We used EFA to identify underlying factors associated with success that were represented by correlated survey items. The second step, CFA involved evaluating the measurement model that represented relationships between survey items and underlying factors. After further refinement of the measurement model, we used SEM to analyze the structural model for interrelationships between factors, and then a subsequent post hoc analysis to investigate the possibility of generating a better-fitting model for the data. A simultaneous qualitative analysis involved examining trends in participant comments to identify underlying themes across multiple items.

3 RESULTS

3.1 Descriptive Analysis

The initial descriptive statistics review of survey item responses suggested generally positive attitudes toward academies/programs, with items written as positive statements showing the highest frequencies in responses of agree or strongly agree. Most items written as negative statements showed the highest frequencies in responses of disagree or strongly disagree, indicating positive sentiments related to the participant's program. However, three items written as negative statements produced a wider variability in survey responses. The survey item with the most unexpected responses was item 15. The expectation was that a majority of participants would disagree with this statement, however, the opposite occurred. Half of all participants chose either agree or strongly agree as their response. There was also an unexpected trend in responses for item 20. Though the highest frequency was associated with the expected choice of disagree (34.6%), almost the same proportion (33.7%) chose either agree or strongly agree. This phenomenon occurred once more with item 24. The highest frequency was associated with the expected choice of disagree (36%), but 30.9% selected agree or strongly agree. It may be important to note that the only three survey items that produced unexpected results were all items written in a negative format. Additionally, the variability in these responses may have influenced some of the statistical results in hypothesis testing.

3.2 Exploratory Factor Analysis

Although there were three items that generated unexpected and potentially anomalous responses, we included all survey items associated in the literature with predictors of organizational success in the first phase of data analysis, EFA. Initial evaluation of the inter-item correlation matrix to verify EFA assumptions led to elimination of item 15, which had been flagged during the descriptive analysis as potentially problematic.

Application of the EFA procedure led to further reduction in the number of survey items to generate the optimal model. This phase involved principal component analysis (PCA) and Oblimin rotation, applying the Kaiser-1 criterion (a cut-off eigenvalue of 1.00 for identifying factors) and scree plot exploration for factor extraction (Lattin et al., 2003). The initial EFA with no assumptions about the number of factors resulted in identification of five factors. The scree plot appeared to have elbows at three and five factors, the latter supporting the eigenvalue—based results (Figure 2). Almost 54% of the variance was accounted for in the first five factors (Table 2). Subsequent EFA iterations, involving an Oblimin Promax rotation, led to removing survey items 12, 14, and 18; these items did not meet minimum the factor loading threshold. Upon making these changes, the number of underlying factors was reduced to four.

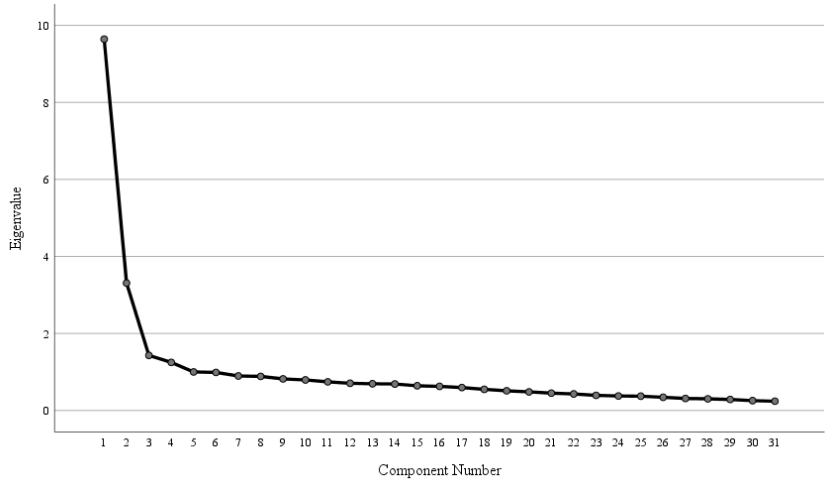

Figure 2: Scree Plot Showing Elbows (inflection points) at Three and Five Factors

Table 2: Excerpt of Total Variance Explained Showing EFA Results Based on Eigenvalues

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.642	31.104	31.104	9.642	31.104	31.104
2	3.309	10.673	41.777	3.309	10.673	41.777
3	1.430	4.614	46.392	1.430	4.614	46.392
4	1.248	4.027	50.418	1.248	4.027	50.418
5	1.001	3.230	53.648	1.001	3.230	53.648
6	.988	3.187	56.835			
7	.896	2.891	59.726			

Note. SPSS Extraction Method: Principal Component Analysis.

We examined the survey items associated with each of the factors, leading to factor classification as leadership and collaborative environment, motivation and learning, organizational accountability, and resource availability. Relationships between survey items and these factors were reflected in the measurement model (Figure 3). Our review of the extant literature related to these constructs resulted in development of three research questions with associated sets of hypotheses (regression coefficients represented by β), and the structural model (Figure 4).

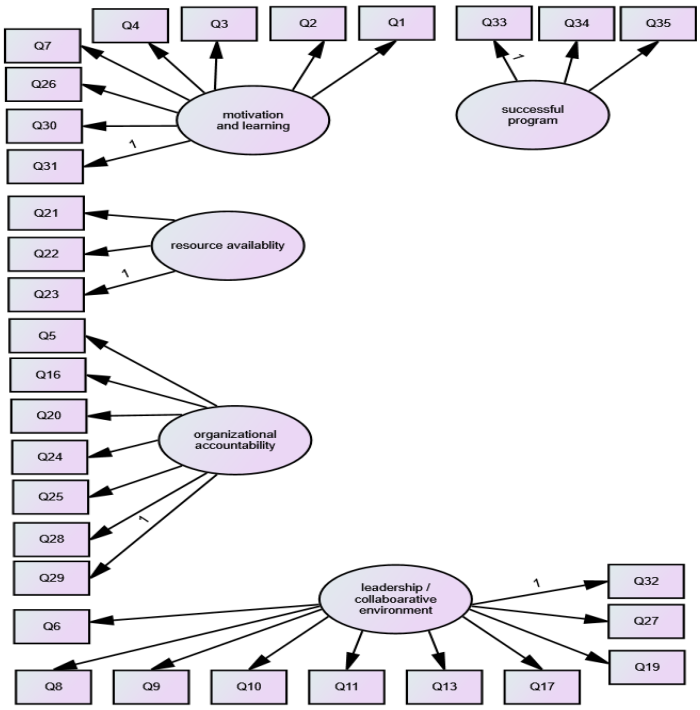

Figure 3: Measurement Model for CFA Based on Results of EFA

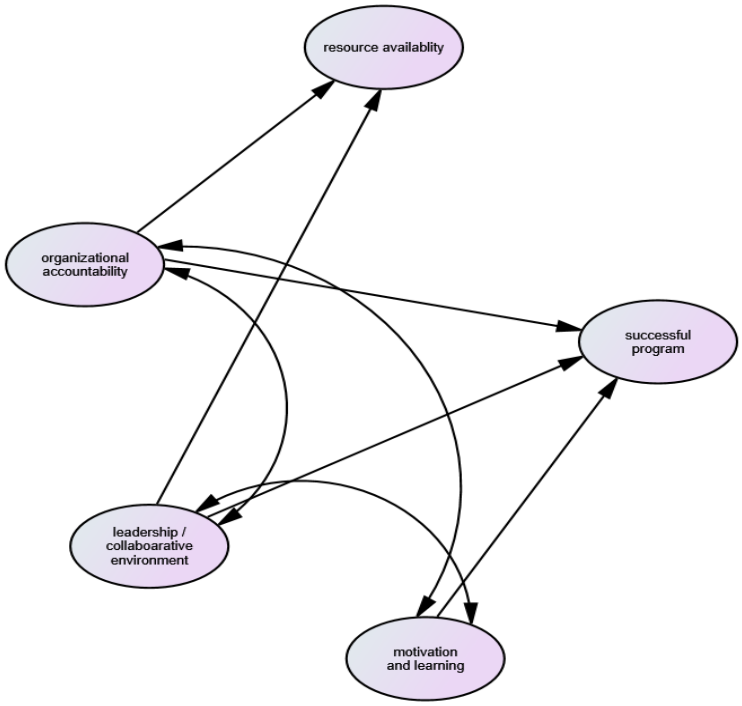

Figure 4: Structural model based on results of EFA

Research Question 1: Is the endogenous variable success predicted by the three exogenous variables (motivation and learning, leadership/collaborative environment, organizational accountability)?

H_{110}: β for the exogenous variable motivation and learning = 0.

H_{11a}: β for the exogenous variable motivation and learning > 0.

H_{120}: β for the exogenous variable leadership/collaborative environment = 0.

H_{12a}: β for the exogenous variable leadership/collaborative environment > 0.

H_{130}: β for the exogenous variable organizational accountability = 0.

H_{13a}: β for the exogenous variable organizational accountability > 0.

Research Question 2: Is the endogenous variable resource availability predicted by the two exogenous variables (leadership/collaborative environment, organizational accountability)?

H_{210}: β for leadership/collaborative environment relating to resource availability = 0.

H_{21a}: β for leadership/collaborative environment relating to resource availability > 0.

H_{220}: β for organizational accountability relating to resource availability = 0.

H_{22a}: β for organizational accountability relating to resource availability > 0.

Research Question 3: Is there a model that better fits the data than the original structural equation model?

H_{30}: The original model provides the best fit for the sample data.

H_{3a}: There is at least one post hoc model that is a better fit for the sample data.

3.3 Confirmatory Factor Analysis

The second phase of data analysis involved CFA. Examination of the regression coefficients for the survey items identified in the measurement model (Figure 3), revealed that all of the coefficients were significant (p-values < 0.001). Although all regression coefficients were significant, a review of GoF indices suggested the measurement model required some modification to be classified as good fitting (X^2 =878.866 with df = 426 and p-value < 0.001, CFI = 0.893, RMSEA = 0.055, SRMR = 0.0624, PNFI = 0.745). The values for RMSEA, SRMR, and PNFI were within the acceptable range (RMSEA < 0.08; SRMR < 0.08, PNFI > 0.50), however, the CFI was low (references indicate a minimum value of 0.90 should be achieved).

Adjustments based on modification indices (MI) produced as part of the CFA resulted in improved fit indices. These adjustments included adding covariances between error terms for four pairs of survey items: 20 and 24; 27 and 32; 4 and 7; and 9 and 32. These covariances showed connections between perceptions of how decisions were being made within academies/programs, perceptions of personal and organizational continuous improvement, decision-making and program activities, and collaborative leadership leading to organizational improvement. Table 3 shows the overall change to GoF indices after adding these covariances.

Table 3: Changes to Goodness of Fit Indices

Description	X^2	df	p-value	CFI	RMSEA	SRMR	PNFI
original measurement model	878.866	426	< 0.001	0.893	0.055	0.0624	0.745
after addition of covariances	804.830	422	< 0.001	0.910	0.051	0.0603	0.753

3.4 Reliability and validity of constructs

Convergent and discriminant validity and construct reliability calculations revealed the need to remove some survey items to achieve or approach acceptable statistics. Items whose removal would make the most significant difference in evaluation statistics were reviewed to minimize the effect of the loss of information associated with said items. In each case, wording of the item being removed appeared closely related to other items associated with the same factor, thus its removal was not likely to eliminate important information from the study. Additionally, since all of the participant comments were retained for the qualitative analysis, there would still be some part of the responses for each of these removed items included in the final discussion and conclusions. Three items were removed and evaluation statistics recalculated, resulting in a final set of evaluation statistics that reflected validity and reliability improvement (Table 4).

Table 4: Measurement Model Evaluation for Validity and Reliability

Descr	X^2	*df*	*p*-value	CFI	RMSEA	SRMR	PNFI	loadings	CR	AVE	AVE > MSV
model with all co-variances	804.83	422	< 0.001	0.910	0.051	0.0603	0.753	> 0.5 except Q23 (0.494)	all > 0.7	lead collab 0.38 org acc 0.43 res avail 0.53 motiv 0.39 success 0.46	only res avail & org acc > both msv; lead collab and motiv each > 2 of 3
removed Q11, Q26, Q6	660.40	338	< 0.001	0.917	0.052	0.0605	0.755	> 0.5 except Q23 (0.494)	all > 0.7	lead collab 0.40 org acc 0.43 res avail 0.53 motiv 0.40 success 0.46	only res avail & org acc > both MSV; lead collab and motiv each > 2 of 3

After removing three survey items, most of the indicators for model reliability and validity had improved. All factors had construct reliability (CR) values greater than the 0.7 threshold, suggesting the measurement model had high CR. All factor loadings except for the loading for one survey item related to resource availability (0.494) were greater than 0.5, indicating adequate convergent validity. The survey item with a slightly lower factor loading was left in the model so that resource availability would have three indicators (meeting the three-indicator rule described by Hair et al. (2010)), as its loading was close to the 0.5 threshold. The average variance extracted (AVE) value for resource availability was greater than the advised threshold of 0.5, suggesting adequate convergence. However, the remaining factors produced AVE values from 0.40 to 0.46. Though these values were not greater than the rule-of-thumb threshold, they were either close (0.43 for organizational accountability and 0.46 for successful program) or had improved with removal of low-performing survey items (leadership/ collaborative environment improved from 0.38 to 0.40 and motivation/learning improved from 0.39 to 0.40). At this point, removing any more survey items would exceed the recommended maximum of 20% (Hair et al., 2010) and would likely lead to the loss of information important to the analysis, so it was noted that one convergent validity measure (factor loadings) indicated convergence for all factors except resource availability, while a second measure (AVE) indicated convergence for resource availability.

Discriminant validity was assessed by comparing AVE values for pairs of factors to their combined maximum squared variance (MSV). Only resource availability (AVE = 0.53 > MSVs of 0.40, 0.33, and 0.02) and organizational accountability (AVE = 0.43 > MSVs of 0.02, 0.10, and 0.22) had high discriminant validity. Leadership/collaborative environment (AVE = 0.40 > MSVs of 0.33 – resource availability and 0.10 – organizational accountability; AVE = 0.40 < MSV of 0.73 – motivation and learning) showed partial

discriminant validity. The same held true for motivation and learning (AVE = 0.404 > MSVs of 0.21 – organizational accountability and 0.403 – resource availability; AVE = 0.404 < 0.73 – leadership/collaborative environment) showing partial discriminant validity. Two factors (leadership/collaborative environment and motivation and learning) were truly distinct from both resource availability and organizational accountability but were not distinct from each other. Thus, the measurement model met the criteria to be classified as an adequate to good-fitting model and met some of the criteria to be classified as having high construct reliability and adequate construct validity (some high, some low).

3.5 Hypothesis Testing Results

After final modifications to the measurement model, we evaluated the structural model. The first step involved review of the regression coefficients for the latent constructs, to evaluate research questions one and two. The parameter estimates for leadership/collaborative environment and organizational accountability as predictors for success were not significant (*p*-value = 0.356 and *p*-value = 0.758, respectively). Additionally, the parameter estimate for organizational accountability as a predictor for resource availability was not significant (*p*-value = 0.474). Given that the parameter estimates for leadership/collaborative environment as a predictor for success and organizational accountability as a predictor for resource availability were negative, these relationships were removed from the model, and it was run again. The parameter estimate for organizational accountability as a predictor for success continued to be insignificant (0.037 with *p*-value = 0.383), so it was subsequently removed. The remaining parameter estimates were significant (Table 5). Thus, there was sufficient evidence to reject H_{110}, but not H_{120} nor H_{130}. There was also sufficient evidence to reject H_{210}, but not H_{220}. It should be noted that when the related modifications were made to the model, variance terms for both the endogenous variables success and resource availability were significant (0.035 with *p*-value = 0.023 and 0.157 with *p*-value < 0.001, respectively).

Table 5: Final Regression Coefficient Estimates for Latent Constructs

			Estimate	S.E.	C.R.	P
successful_program	←-	motivation_learning	.967	.093	10.405	***
resource_availability	←-	leadership_collab_envir	.640	.098	6.509	***

After evaluating the regression coefficient estimates for the structural model, the covariances between latent constructs were examined. All of the estimated covariances were significant with *p*-values < 0.001. The GoF indices for this model were reviewed and are compared to the initial structural model in Table 6. Though there were slight increases in the SRMR, it was still less than the 0.80 threshold. Additionally, the PNFI increased (due to the reduction in estimated parameters), indicating a better-fitting model.

Table 6: Goodness of Fit Indices for Structural Model

Model	X^2	*df*	*p*-value	CFI	RMSEA	SRMR	PNFI
initial	660.40	338	< 0.001	0.917	0.052	0.0605	0.755
after removal of insignificant parameters	662.60	341	< 0.001	0.917	0.052	0.0606	0.761

The final research question focused on the possibility that post hoc analysis might produce a better fitting model. Multiple models were designed reflecting modifications to predictor and covariant relationships. One resulting model produced the best set of GoF indices, with only a slight decrease in PNFI as compared to the first structural model with all parameter estimates significant (Table 7). No subsequent modifications produced models with equivalent or better GoF measurements. I classified this model as the best fitting model for the collected data, providing sufficient evidence to reject H_{30}. The final model with regression, variance, and covariance estimates is shown in Figure 5 (see Appendix 2).

Table 7: Goodness of Fit Indices for Post Hoc Structural Model

Model	X^2	*df*	*p*-value	CFI	RMSEA	SRMR	PNFI
after removal of insignificant parameters	662.60	341	< 0.001	0.917	0.052	0.0606	0.761
new model with modifications to latent construct relationships	645.910	339	< 0.001	0.921	0.051	0.0590	0.760

4 CONCLUSIONS

The hypothesis testing results suggested that the most important factor in predicting success for an aviation/aerospace/engineering academy or program is personal motivation related to learning. Though other underlying factors were clearly related to perceived program success, they appeared to have indirect relationships with success. The construct associated with resources focused more on availability than on management, which was even more clearly defined in additional comments by participants.

Perhaps one of the important conclusions that can be drawn from the results is that success of a learning organization is directly related to personal motivation of its stakeholders, and that motivation can be impacted by interrelated combinations of constructs identified in the literature associated with the theoretical frameworks related to organizational design and excellence. Other factors drawn from the literature on organizational design that appear to have a direct relationship with motivation and learning and, by extension, an indirect relationship with program success are leadership/collaborative environment, organizational accountability, and resource availability.

Motivation was the most commonly recurring theme in participants' additional comments, indicating its predictive strength for an organization's success. Emerging themes of collaboration, vision / alignment, and concerns regarding limited resources and funding, are directly associated with the remaining three exogenous variables (leadership/collaborative environment, organizational accountability, and resource availability, respectively) in the final model. A theme of communication could be associated with collaboration in the final model. The identification of, and association between, these underlying constructs should add to the body of research on organizational design, focusing on educational or learning organizations and specifically concentrating on career education programs with aviation, aerospace, and/or engineering themes.

The results of this research study can provide a guide for stakeholders interested in designing a new aviation/aerospace/engineering career education academy or program. Participant comments, written in a general manner, would enhance such a guide with ideas for components of a successful program and possible pitfalls to avoid. However, as the survey and comment results indicated in this study, personal motivation is the most important factor in creating a successful program. Thus, it would be imperative to develop as deep an understanding as possible of the potential population for a new program as an early step in design, so that individuals would be motivated to join the program, stay with it, and become productive stakeholders themselves.

Because survey participants self-selected, this study was based on voluntary response data which can lack generalizability to the population. There were "no opinion" responses to individual survey items, but it is difficult to determine if an individual chose "no opinion" because they truly had no opinion or because they had a neutral opinion. It is also impossible to estimate the opinions of academy and program stakeholders who were invited but chose

not to participate in the study. It is possible that stakeholders in academies or programs that were not identified for the study would have opinions that differ significantly from those offered by the individuals who did participate in the study.

Missing information created a further limitation. Because Likert-scale items are ordinal data, it is generally considered inappropriate to impute values for missing data. The EFA procedure ignores all data for a case that has a missing value for any individual variable. For this reason, all cases that had missing data were removed from the data set before any analysis was performed. It is possible that information pertinent to hypothesis testing was lost in the removal of these cases. To mitigate the loss of information, all comments by these participants were retained for qualitative review.

A recommendation related to the target population is that the research be replicated with a homogeneous sample of stakeholders in high school academies only. This sample could include stakeholders from various regions within the United States as well as regions around the world, to identify global trends as well as significant global differences. A very large sample would allow for subgroups to be evaluated.

Given the result that personal motivation was the most closely related construct to program success, researchers should expand study of stakeholder motivation. Considering the realities of increased aviation/aerospace/engineering workforce demands and continued disparity between population demographics and workforce pipeline demographics for these three industries, it is evident that research should involve questions of what motivates students (especially those in traditionally underrepresented demographic subgroups) to become and remain involved in aviation/aerospace/engineering career education academies/programs. To facilitate deeper understanding of program faculty and staff motivation, research should involve investigating instructional training and experience as well as "the why" associated with a desire to work in these career education programs. Subsequent study of individuals who are employed in these industries should investigate what, if any, secondary career education opportunities they may have participated in and how those opportunities shaped their learning as well as their personal career trajectories.

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Appendix 1: Survey Items

1. I believe that I can be successful as a participant in and/or contributor to my academy/ program.
2. I believe my effort/participation level with respect to my program directly affects how well I achieve my expectations.
3. I believe that participating in and/or contributing to my program is a valuable experience (with respect to my personal goals).
4. Decisions about my program are aligned with the vision statement.
5. Daily activities/processes within my program are not aligned with the vision statement.
6. There is a system in place to measure my program's progress according to our vision statement.
7. The things I participate in that are related to my program seem to be aligned with the vision statement.
8. Leaders (students and/or adults) help everyone work to achieve the goals and objectives of my program.
9. Leaders (students and/or adults) regularly interact with members of my program to involve us in planning and decisions.
10. Everyone involved with my program (students and/or adults) is expected to contribute to the program's success.
11. When someone involved with my program (students and/or adults) does not meet their responsibilities, they know they will be held accountable.
12. Decisions about my program are made by the people who have the best information available.
13. Important information about my program is communicated to everyone in a timely manner.
14. When I have a question or concern about my program, I can get answers or responses quickly.
15. In my program, there are specific groups of people (e.g., seniors who have been in the program for four years, or math teachers) have better access to information we all need.
16. The way information is presented for my program makes it difficult to understand.
17. We use teamwork to get work done in my program.
18. People who have different skills, knowledge, or talents, work together to make the best decisions for my program.
19. Everyone involved with my program (students and/or adults) is able to have input about what we do and the direction we are going.
20. In my program we have power struggles that affect how well we achieve our goals and objectives.

21. We have the supplies and material resources we need to meet the goals and objectives of my program.
22. We have the technology and equipment resources we need to meet the goals and objectives of my program.
23. We have the people (students and/or adults) we need to meet the goals and objectives of my program.
24. Resources are not always used for activities that align with the program vision.
25. It is difficult to determine who makes decisions about how to use resources for my program.
26. My program provides opportunities for me to improve my related skills, knowledge, or talents, if I want to participate.
27. Everyone (students and/or adults) in my program is involved in lifelong learning to increase their related skills, knowledge, or talents.
28. My program does not provide a support system for helping participants meet their responsibilities.
29. I believe I can learn more career-related knowledge associated with my program outside the program than by participating within it.
30. My program is flexible enough to adapt to change in related industries or academic requirements.
31. I believe my program gets better (with respect to the vision statement, goals, and objectives) every year.
32. I believe everyone involved with my program (students and/or adults) plays a part in making my program better (with respect to the vision statement, goals, and objectives).
33. I believe my program is a successful organization.
34. My program is recognized as successful by others through awards, public media (newspaper, online, or television reports of achievement), or other methods. (Please specify the 'other' method in the Comment box).
35. I would recommend my program to students/colleagues who I know, who are interested in aviation/aerospace/engineering education and/or careers.

Appendix 2: **Final Model with Parameter Estimates**

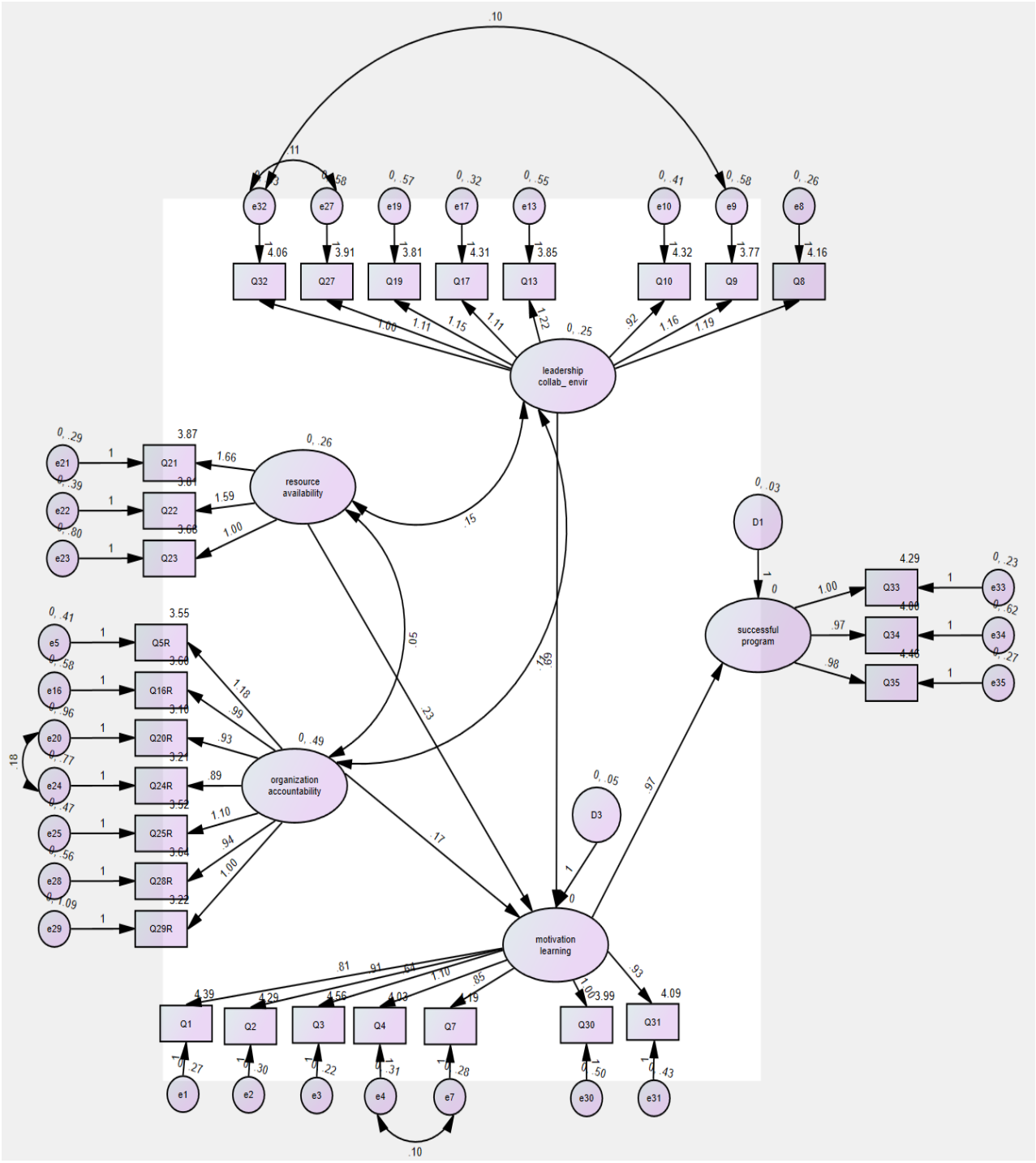

Figure 5: Final Model with Parameter Estimates

Book review: Fleming, Peter (2021). Dark academia. How universities die. Pluto Press.

Jürgen Rudolph [15]

Dark academia's declared purpose is a description and explanation of the hidden psychological injuries endured by students and academics in contemporary universities. To state it clearly right at the beginning of this review, this is an excellent and important book that I strongly recommend to all stakeholders in higher education, including students. Its author Peter Fleming is a professor at University of Technology Sydney (UTS) Business School whose previous academic output has focused on the future of work and its ethical implications.

Both the book's main title (Dark academia) and its subtitle (How universities die) require further explanation. 'Dark academia' refers not only to the economic aspect of the student debt mountain, but more specifically to other 'dark' aspects of the neoliberal university such as despair, depression, chronic stress and anxiety, self-harm, and in extreme cases, suicides amongst students and academics. Fleming observes that universities that made themselves overly dependent on the lucrative international student market found themselves in a world of trouble when the coronavirus and concomitant travel restrictions emerged in 2020. Fleming's more original thesis is, however, that universities were already gravely ill pre-pandemic. His book discusses symptoms of what he perceives as a terminal illness of the neoliberal (privatised, corporatised, marketised and financialised) university. In Fleming's analysis, universities are in mortal danger largely due to "bad management and hostile government budgets" (p. 157), with the global pandemic an added conundrum. The alarming picture that Fleming paints runs counter to the fairy tale image of a "recondite club of tweed-jacketed, pipe smoking professors who think all day and pen esoteric research papers once every few years" (p. 156).

In the introductory chapter, Fleming provides a useful historical overview of four shifts that the university-as-we-know-it has undergone. Wilhelm von Humboldt's ideal of higher education was influenced by the Enlightenment and emerged in the early 19th century. It promoted a holistic combination of research and teaching in an environment of academic freedom (for both teachers and students) in order to transform students into autonomous individuals and global citizens. Although Humboldt's vision constituted an important breakthrough (that was by and large adopted by the early 20th century US liberal university and elsewhere), the university envisaged and enacted by him was still elitist and dominated

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by white male privilege, amongst other flaws. A second historical shift that occurred starting from around the 1960s was the so-called academic revolution that led to the massification of university admission.

The academic revolution eventually led to a counter-revolution and the birth of the neoliberal university from the mid-1980s onwards. In the UK (Jarratt Report), Australia (Dawkins Reforms), and in New Zealand (Todd Report), for instance, government reports recommended a top-down managerialism and the metrification of academic work. The fourth shift to an edu-factory (and even further removed from Humboldt's ideal) is an acceleration of the neo-corporatised university due to the current pandemic. To cite Fleming: "Beleaguered by managerial-bloat, business bullshit and a Covid-compromised economic environment, the idea of the modern university may soon come to an end" (p. 19).

Chapter 2 argues that contemporary higher education produces "damaged people" (who are stressed, fatigued, depressed, and perhaps even suicidal), providing a sharp contrast with the promises of glossy university brochures (p. 22). While self-actualising scholars have historically demonstrated great self-motivation, the current involuntary workaholicism at universities has been further exacerbated by the pandemic.

In chapter 3, Fleming argues that the neoliberalisation of society has been paralleled by the "businessification" (p. 36) of universities, leading to the phenomenon of the edu-factory where a premium is charged for employability outcomes, in line with the "cult of work" (p. 36). Higher education has been revamped as an "industrial-complex" and a "leading export sector" (p. 36). Especially in higher education's three major export countries – the U.S., the UK, and Australia – the majority of teaching staff are part of the gig economy. Especially in the U.S., the Uberfication and exploitation of an underclass of adjuncts described by Fleming is worthwhile quoting:

"Today around 75 per cent of teaching staff are untenured, a massive growth in only a few years. They get paid about US$2500 per course and receive no healthcare or pension benefits. Adjuncts frequently fall below the poverty line and require welfare assistance. Sleeping in their cars and showering in college gyms isn't unheard of" (p. 46).

Chapter 4 focuses on the "authoritarian turn in universities" (p. 50). In addition to the regular bureaucracy, there is what Fleming calls their informal and neurotic dimension of darkocracy, based on power networks controlled by university managers. Fleming cites Ginsberg's The fall of the faculty when he describes the expansion of non-academic personnel via-a-vis academics. Ginsberg bemoaned that universities were increasingly "filled with armies of functionaries – the vice presidents, associate vice presidents, assistant vice presidents, provosts, associate provosts, vice provosts, assistant provosts, deans, deanlets, deanlings, each commanding staffers and assistants – who, more and more, direct the operations of every school" (cited in p. 52). Fleming, when writing about the chronic overwork at universities, distinguishes 'real work' from 'sludge work'. Sludge work encompasses activities such as filling in forms and following procedures that are caused by over-bureaucratisation; they "add little intrinsic value, yet absorb significant amounts of time" (p. 58).

Chapter 5 focuses on university senior managers' obsession with metrification and big data that has been cemented by governmental funding structures. Metric-mania can create mindless performance targets linked to crass incentive systems that in turn may lead to the

loss of collegiality and hyper-competitive careerism. A veritable tyranny of metrics – student evaluation scores; journal quality rankings, discipline-level tables, and journal impact factors; research grants; Google citation ratings, H- and i10-indices – is used for appraisals and promotions.

This short-termist metric-fixation cannot capture genuine scholarly work that is complex and time-consuming, as Goodhart's law of perverse incentives shows. Goodheart's law can be exemplified in several ways. For instance, rewarding faculty for increased publications may lead to a growth in substandard papers, incremental-orientated research, and even an increase in false or misleading use of data; or rewarding academics for increased citations may lead to increased self-referencing, and "journal reviewers and editors insisting their own papers be cited" (p. 78). The metrification of student evaluations has also led to grade inflation and the teaching of content that could be easily mistaken for entertainment. The validity and reliability of quantitative research is imperiled by unethical practices such as p-hacking (the manipulation of data analysis in order to misrepresent a favoured result as statistically significant), HARKing (hypotheses are added only after a statistical significance has been found) and 'dry-labbing' (the experiment lab exists only on paper), amongst other dirty tricks.

At research universities, it is publish or perish. Scholars "would seemingly run over the next of kin in a small jeep if it meant getting published in a 'top' journal" (p. 5). Due to their fetishisation, highly-ranked journals (often hidden behind paywalls and thus inaccessible to non-academics) are endowed "with near quasi-religious powers" (p. 31) and the "measure has become the target and the tail is wagging the dog" (p. 49). Multinational journal publishers have thus been placed in a position where they can extort universities to access their own outputs with outlandish subscription fees. A less well-documented practice is the publication of overpriced academic monographs. Ironically, universities pay their academics salaries, but nonetheless must then purchase their output from multinational journal and book publishers for their libraries, thus paying twice. Another irony, especially in the case of public universities, is that taxpayers do not have access to the academic output that they funded as it is hidden behind firewalls and prohibitively expensive.

The title of chapter 6, "The demise of homo academicus", can be taken rather literally, as it discusses suicides and other deaths by students and academics as a result of 'dark academia'. One particularly poignant example that shows the extent of the "proletariatisation of academic labour" (p. 92) in the U.S. is the death of 83-year-old adjunct professor Margaret Vojtko who had an onerous workload, but barely earned US$25,000 with no healthcare benefits. After she was diagnosed with cancer, her health deteriorated and she was dismissed by her ostensibly Catholic employer. Medical bills mounted, medicine and electricity ran out, and Prof Vojtko eventually died a lonely death.

Chapter 7 discusses universities' obsession with impact – defined as "scholarly activity with influence beyond the so-called ivory tower, delivering practical outcomes for business, contributing to growth and national prosperity" (p. 99). Such a definition of impact for instance precludes the studying of the stagecraft of 15th century Florentine theatre, which shows how far modern universities have moved away from the Humboldtian ideal. Impact also presents critical intellectuals with an intriguing double-bind: damned if they say something, damned if they don't. If they are not chastised for being insufficiently 'applied'

and practical because they focus on more traditional academic activities (such as teaching and writing academic works), they may be castigated as elitists, if they speak out about political and environmental topics such as populism or global warming.
The next chapter (8) addresses the "academic star complex" (p. 113) that is rather different from 20th-century public intellectuals such as Jean-Paul Sartre, Michel Foucault, Susan Sontag, and Angela Davis. Amusingly, Fleming distinguishes three-character types of academic stars: successful academic starlets as well as wannabe and failed starlets. These comparatively mundane starlets excel at networking and self-promotion. In Fleming's observation, when failed starlets enter middle management, they "often seek revenge and can easily become Hitler-like taskmasters" (p. 123).

Chapter 9 focuses on student hellscapes. In the U.S. and in the UK, the student debt mountain has reached "epic proportions" (p. 128). There is also a racial dimension to it, with black and brown Americans being disproportionately affected by this malaise as compared to their white counterparts. As a result of ever-increasing study fees, tertiary education has become a "borderline luxury good" (p. 132). The student debt crisis is a stressor for both students and graduates. Financial difficulties are exacerbated by socio-economic conditions. Shockingly, a 2019 survey in the UK found that "40 per cent of UK students live in flats with mould on their walls" (p. 133). The dire financial situation has led to young female college students becoming 'sugar babies' who offer sexual services to richer, older men ('sugar daddies') via dedicated websites and apps. International students are often forced into semi-legal, exploitative work arrangements that in extreme cases, can amount to modern slavery.

At the same time, an unsavoury flipside of the edu-factory is the rise of 'essay mills' that offer contract cheating – a serious matter where apparently, serious money can be made, with one China-based essay writer earning US$150,000 a year. Nonetheless, I could barely stop laughing when Fleming cited EssayShark.com's 'gig economy' business model to match 'customers' and writers:

"First, our writers check instructions and deadlines of orders and place their bids in accordance with the complexity and the urgency of particular orders, The system automatically adds a service fee and the total price is displayed to the customer. Then the customer is able to compare all of the bids, as well as get acquainted with each writer's level of cooperation and writing skills by watching him or her start working on the order. This way, a customer can settle for a particular writer whose approach to work and bid requested is most suitable for his or her needs" (cited in Fleming, 2021, p. 139).

In the final chapter 10, "How universities die", Fleming discusses ten symptoms of what he perceives as the terminal decline of universities. My favourite is symptom 7: "Over time academic metrics end up measuring only one thing. The extent of their own reification" (p. 153). Apart from yearning for Derrida's utopian vision of a university "sans condition" with a no-strings-attached funding structure, what can the critical pedagogue in the employ of a university do about the crisis of higher education? Fleming regards Harney & Moten's (2013) call for decolonisation from the inside out as more realistic than Derrida's utopia. Their aim

is to arrive at a new conception of scholarship and pedagogy in the undercommons The difficult-to-capture concept of the undercommons does not refer to a physical place, but to the relationships between people who have been excluded and denied resources. In Harney and Moten's analysis, the university becomes a place of refuge and a source of resources for critical projects in which academics problematise the university as well as themselves.

Fleming suggests that the positions of Derrida and Harney & Moten should not be regarded as binaries. But despite these more hope-inspiring options, Fleming remains "pessimistic" (p. 165) and appears to tell us (to cite the title of another recent book by him) that The worst is yet to come (Fleming, 2018). The last two sentences from his book explain his pessimism:

"But the institutional field is overdetermined and formidably delimited by the state first, the market and economic matrix second and the corporate industrial-complex third, which increasingly define the macro-rules of the game we must play. As it circles the drain, this tripartite has gripped society even more decisively – including higher education – and now threatens to drag us down with it into a dark new beginning" (p. 165).

There are many things to like about Fleming's brilliant and important book. While there is an understandable focus on the Anglo-Saxon sphere, with many excellent examples from Australia, New Zealand, the UK and the U.S, Fleming refreshingly also provides great examples from additional countries. Perhaps there is even an opportunity for Fleming to edit a volume on dark academia by inviting global authors on the topic? While Fleming's hyperbole can be extremely entertaining, he sometimes goes slightly over the top, for instance, when he makes comparisons between the managerialism found in contemporary universities and Stalin or Hitler. However, Fleming also appropriately notes that academic work, when compared with repetitive factory work, is "still a walk among the tulips" (p. 157).

Dark academia, like some of Professor Peter Fleming's other books, is a relatively thin book that can be read in a day or two. The numerous endnotes demonstrate his academic rigour (and they are worthwhile to refer to). Consequently, the main text is not burdened with references and instead imbued with surprisingly great entertainment value. This would appear to be an ideal combination for a book like this, hopefully not only attracting academic readers, but also students and other members of the general public (who will most likely skip the endnotes). Dark academia is an outstanding book that would make for thoroughly depressing reading, if not for the author's black humour that occasionally transforms dark academia into dark comedy. Fleming has a rare gift for writing that, at least in my case, made the book as unputdownable as a whodunnit. I had previously read Cederström and Fleming's Dead Man Working (2012) – in which it is argued that corporations have colonised life itself and the experience of work is that of a living death with compulsive feigning of enthusiasm. After reading Dark academia, I look forward to exploring Fleming's oeuvre further. Amongst others, The mythology of work (2015), The death of homo economicus (2017) and Sugar daddy capitalism (2018a) await.

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