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Chapter

Views of South Sudanese Secondary School Teachers about the Use of Humour in the Mathematics Classroom

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Abstract

This chapter reports the views of South Sudanese secondary school teachers about the use of humour in the mathematics classroom as a teaching and learning tool. The use of humour as a pedagogical toolkit in a mathematics classroom is something that has not yet been seriously or widely considered and how the teachers, especially South Sudanese teachers, would react to the use of humour in the classroom was not yet known. An opinion survey containing six (6) close-ended questionnaire items or statements related to the use of humour in the classroom was distributed to ten (10) secondary schools located within and around Juba city. About sixty-five (65) South Sudanese secondary school teachers responded to the survey. Posed was a research question intended to explore the general views, attitudes, or opinions of South Sudanese secondary school teachers: What do South Sudanese secondary school teachers think about the use of Humour-Supported Instructional Approach (H-SIA), a proposed-alternative method of teaching and learning mathematics at secondary school level? Findings of this opinions survey indicate that South Sudanese secondary school teachers' overall average views are positive toward the use of humour in the classroom setting. The average majority of the surveyed secondary school teachers appeared keen and seemed eager to welcome experimentation with new ways of teaching and learning in the classroom. Hence, it is recommended that classroom teachers be always encouraged and allowed a certain degree of freedom to explore and try out new ways of teaching and learning. It is suggested, however, that teachers be first provided with necessary proper training about how to use humour appropriately, effectively, and creatively in the classroom environments.

Keywords: teachers' views, classroom humour, mathematical humour, pedagogical toolkit, teaching and learning mathematics

1. Introduction

This chapter reports an aspect of mathematics teachers' views about the use of humour in mathematics classroom that emerged during the pilot phase of a

larger study on a newly proposed method of instruction called Humour-Supported Instructional Approach (H-SIA) [1]. In such a study [1] where mathematics itself was described or perceived as an infinite task, process, or procedures performed by a finite person, performer, or operator, the purpose of the method (H-SIA) was to attract and enhance students' interest in mathematics using the concept of humour as a teaching and learning tool. Viewed from this perspective or perception of mathematics as an infinite process with an infinite number of objects to operate with (e.g., it may take nearly an infinite amount of mathematical operations or procedures just to figure out what is happening in a tinny place such as an open interval on a line or a surface of a tinny disc or ball), it is not difficult to see why there always been legitimate issues, concerns or problems associated with the teaching and learning of mathematics as subject matter. Hence, most students always privately complain about the difficulties involved in learning, teaching and even mastering such an infinite task, procedures, or infinite operations; although some students sometimes openly complain but often in the guise of boredom (lack of interest) in various mathematics classroom settings, perhaps fearful of the negative stereotypes associated with the illusive labels of the so-called IQ concept or myth. Dealing with an infinite task is always a delicate business or issue and it is therefore not surprising why we always hear various students' stories about mathematics classrooms that are so boring, about mathematical experiences that are so humiliating, or about mathematics tasks that are so pointless [2]. Hence, it pays to lighten up the subject with humour or in other ways that are appreciated by the students [3, 4] as humour itself is known to play an important role in people's overall well-being in their daily-life activities [5].

Humour as a teaching technique or strategy has been widely defined as anything perceived or recognised by students to be funny, comical, or amusing; or the quality that makes something funny, laughable or amusing [6, 7]; and is more recently generally defined as an skillset, away to communicate, an educational strategy, a personal perspective or a positive emotional and behavioral response [8]. In this study, however, humour was specifically defined relative to mathematics content area as "mathematical humour" [9], a mathematics content-related humour often derived from mathematical concepts being discussed, combined with general humour ideas, particularly the incongruity theory of humour characterised by elements of surprises and unexpected twists or turns [5]. This opinions survey about teachers' views or attitudes was motivated by a South Sudanese volunteer mathematics teacher who initially agreed to take part as a co-teacher-researcher during the experimentation and implementation phase of H-SIA [10], but who later opted out of research participation. This left the researchers to wonder whether the teacher's apparent quitting has anything to do with South Sudanese teachers' overall general views, attitudes or opinions toward the use of humour in the classroom as a teaching and learning tool. While the mostly-welcoming views of students-learners toward the use of humour in the classroom settings are well documented [11, 12], the general views, opinions, or attitudes of the classroom teachers themselves are not yet widely explored [13–15]. The researchers then posed a guiding question intended to explore the general views, attitudes, or opinions of South Sudanese secondary school classroom teachers: What do South Sudanese secondary school teachers think about the use of H-SIA? The H-SIA was a proposed-alternative method of teaching and learning mathematics at the secondary school level for displaced South Sudanese students living in re-settled communities.

The purpose of the proposed method (H-SIA) was to generate and maintain interest in mathematics for these types of students. These students were among the internally displaced people living in temporary resettlement camps or shelters

called Protection of Civilians sites (POCs) under the protection of the United Nation Mission in South Sudan (UNMISS). The students were displaced by the South Sudanese civil war and were taught in five secondary schools, namely Hope, Mat (Union) 1 & 2, Future, and Equity Senior Secondary Schools. These secondary school students were taught by a group of volunteer teachers who double as primary school teachers in adjacent UNICEF sponsored feeder primary schools. These students were chosen for this study because of their exposure to traumatic situations such as forced displacement, committed atrocities, poverty, and living in an insecure environment characterised by threats and intimidations. These students were perceived to be more concerned with issues of daily life activities for survival rather than the learning of mathematics in the classroom setting.

2. Background for the study

While the role of humour in the classroom appears to have been generally ignored, which implies that its use in the classroom is often rare if not almost none existence [4, 15–26], humour in its explicit-verbal forms such as storytelling or narrative has been used almost from the beginning of human existence as social beings. Storytelling technique, funny-humorous stories or narratives [10, 23, 27] as an expressive-verbal form of humour has been used since time immemorial as a powerful tool for grabbing the audience's attention and for passing on knowledge from generation to generation, culture to culture, and individual to individual. Even today, with the invention of powerful technological tools such as PowerPoint presentations, overhead projectors, chalkboards, or even the highly hyped smart boards, storytelling or narrative as a verbal form of humour remains an effective and persuasive channel for knowledge transmission [14].

Storytelling, funny-humorous stories, or exciting narratives [5, 28–30] as an expressive-verbal form of humour is one of the many old known classroom techniques and strategies, but one that seemed to be used only by very few passionate, creative and effective classroom teachers to motivate or inspire their students in the learning process [31–34]. Using humour as a teaching and learning technique or strategy [16] is necessary even more so in an environment such as the mathematics classroom where things tend to be run in a machine-like-robotic fashion with little or no regard to human feelings or emotions. Therefore, classroom humorous materials such as instructional humour [35], storytelling, stories or narratives [36–39] along with many other appropriate various types of humour can be creative way in humanising mathematics and the mathematics classroom [40–42]. Instructional humour, that is, humour related to content material such as mathematical humour [43–51] can be useful and effective in motivating and inspiring students to learn. While mathematical humour can convey to students the teaching qualities such as the teacher's authentic passion for the subject, enthusiasm, and curiosity for teaching and learning, it can also help in fostering not only the much desired cognitive factors but also the often neglected affective learning domains of the subject that are essential for student's social development.

Somehow explicit yet appropriate-contextualised examples of mathematical humour (right off the bat) for secondary school context would be a thief, a shop-keeper, and the total amount stolen: In this case, a thief first stole a 100 dollars from your shop and then came back moments later and bought stuffs worth 75 dollars and you gave him back a 25 dollars change, what is then the total amount of money stolen from you? A chicken and half that lays one and a half eggs a day: If a chicken and half lays one and half eggs a day, what is then the total number of chickens after certain

number of days, months, years, and even at eternity? Or the famous hypothetical classic example of the identical pair of twins paradox in physics (special relativity) used to illustrate that the attractive concept of simultaneity is nothing more than as a matter of converged-diverse personal opinions, where one of the twins (Albert) is supposedly born in New York while the other twin (Alvin) in Tokyo: This has to be admittedly one of those hilarious-classic grand mothers' borderline humour but appropriately contextualised jokes where the twins' mother is supposedly so huge and gigantic such that she is more than capable of delivering these two-cute-identical babies at the same time, but at different places further apart. Here, a contextualised-mathematics problem for the secondary school level would be figuring out the total distance or separation, given the average speeds for the first and second halves of the journey between the two cities; and after that, the most curious students would then be challenged to derive the familiar half way formula from the total separation or distance between the two cities (New York and Tokyo). For more detailed discussion of various examples of mathematical humour relative to the content materials being discussed or the typical appropriate-classroom humour, readers can refer to the following related articles: [1, 4, 6, 12, 14, 18, 25, 50, 52]. In fact, there are many-various opportunities out there for wonderful stories or funny-humorous stories related to mathematics that are appropriate for secondary school contexts and beyond such as, for example:

Descartes' proof of existence of God, Pascal's famous wager, Plato's world of forms, and Newton's attempt to verify biblical chronology, Leibniz's detailed theodicy, current attempts to describe a divine domain in terms of meta-system, and mystical speculation on the infinite. ([45], pp. 62–63).

Instructional humour or classroom humour [24] such as mathematical humour [1, 5] is humour derived from the mathematics concepts being discussed combined with general humour ideas, particularly the incongruity-resolution theory of humour often characterised by elements of surprises, exaggerations, unexpected twists or turns [22, 30–34, 38, 51, 53]. Infused and laced into H-SIA lessons as a form of related humour are pseudo-mathematical proofs or funny-humorous demonstrations—such as, for example, the latest-recent mathematical attempt, claim, or partial proof for the existence of some sort of “the real part of God,” although not yet its complete, complex or whole part [35], a reminiscent of such similar attempts in the past into mathematical theology adventures by the legends before us—attempts which are more often than not riddled with hidden commonly made mistakes and/or ambiguous-unexamined tacit assumptions (e.g., division or multiplication by a disguised zero) which fall into these categories of incongruous elements of surprises, irony, exaggerations, unexpected twists or turns. However, according to Weber [22], false proofs or demonstrations are “funny only if there is some interpretation scheme by which they could plausibly make sense” (p. 58). In addition, all the mathematical humour used in the classroom setting must be either below and/or contextualised at the level of mathematics concepts being taught so that such mathematics jokes are well understood by the students-learners [1].

The primary aim of using humour as an instructional approach in mathematics classroom is to lighten or fire-up students' learning experience, inspire or motivate students to develop liking (interest) for the subject matter, and perhaps foster students' social skills students' social development is an aspect that is often ignored in the mathematics classroom, but one that is equally as important as student's cognitive development often promoted in such environment.

This new orientation in teaching [1], where related-instructional humour is infused and laced into lesson plans, could even be seen as essential to students population such as those in displaced and re-settled communities of South Sudan. These students have experienced severely disrupted socio-cultural-economic lives [35, 49] and are perceived to be more consumed by their day-to-day survival concerns rather than the learning of mathematics in the classroom setting.

Guiding this study is the theory of the teacher's communication competence in the classroom setting [17, 26, 37–41] which falls under constructivism. This theory argues that most creative, imaginative, and effective teachers always acquire and possess certain communication traits, qualities, or characteristics such as teacher's classroom immediacy, teacher's instructional quality, teacher's clarity in organisation skills, and teacher's socio-communication style in the classroom [37, 42, 43]. Among these effective teaching qualities, traits or characteristics is a teacher's humour orientation or the use of humour as a teaching and learning tool [31, 53]. When students view their teachers as using humour frequently, effectively, and appropriately, they also view them as more immediate, approachable, and friendly in the classroom. Hence, a teacher's perceived acceptance of the use of humour as a teaching and learning tool in the classroom is an indication of a teacher's overall communication competence and good teaching practices [45–47].

3. Relationship of the study to STEM education

Science, technology, engineering and mathematics (STEM) education is always described as an integrated-specialised way of teaching and learning with many various associated-acceptable definitions [48, 49]. However, the most preferable definition by STEM scholars is that STEM itself (known by the acronym science, technology, engineering, and mathematics) is a learning collaborative environment where students broaden their knowledge and learn through the process of exploration, invention, and discovery using real-world problems and situations [49]. The relationship of this study, however, about the use of humour in mathematics classroom is not only about the fact that mathematics as a subject matter itself is an embedded-integral part of STEM education as indicated by the STEM acronym in STEM literature, but also the fact that the use of humour or the application of the concept of humour in STEM education classroom settings would help connect the more specialised STEM education to other wider equally-valuable various knowledge domains out there, other non-STEM disciplines such as health, humanities, philosophy, psychology or creative arts to mention but few. The idea is that there may be other non-STEM alternative disciplines that might have been perhaps intentionally or unconsciously left out un-prioritised, underfunded, or undervalued, but that are equally contributing in various proportions in our attempt to understand or get a glimpse of the whole picture of our universe, or the multiverses as the saying goes. While STEM education is no doubt valuable in its own rights and efficient as it helps in quickly achieving the much desired economic prosperity, it is by itself alone not sufficient education, especially if promoted in an apparent expense or negligence of the other equally-valuable disciplines such as the creative fine arts, since those other forms of non-STEM education out there are also needed for the people's overall general well-being as fully developed human beings with an extra sense of humour. This is because having a sense of humour is documented in the literature as a sign of human strength, intelligence, wisdom and psychological maturity [5].

The use of humour as a teaching and learning technique in STEM education classroom settings is often rare if not almost non-existence as the humour use appears to be only implied or implicitly embedded in STEM's various educational robotic platforms, tools, or sources [49, 50], along with the associated educational robots, probably in the implicit forms of perhaps funny-humorous cartoons, interactive-computer games or collaborative group work. Therefore, there is still a need for explicit-appropriate humour use (such as the content-specific related-humorous stories, serious intellectual discussion or conversation, and even some civilised level of heated conceptual debates) from real sources or human beings combined or in conjunction with the use of educational robotic tools or sources in the STEM educational robotic platforms and STEM-related classroom settings. Literature review shows that the use of the concept of humour as teaching and learning tool in its various forms is more promoted, developed and therefore more advanced in the other non-STEM educational disciplines than it appears in the STEM education integrated subject areas such as mathematics classroom setting, where the use of humour (when present) is more often combative—rather than supportive—usually in the primitive forms of competitive riddles, numbers or wordplays [4]. The point or argument being expressed here is that all educational disciplines (whether STEM or non-STEM) are equal in terms of their contributions and values as they represent different dimensional-distinct abilities of various knowledge domains out there; and therefore focusing exclusively on just a few may only create certain levels of disabilities or deficiencies in others, deficiencies which can be minimised, supplemented or enhanced by the application of the concept of interdisciplinary integration, relationship or connection such as the use of humour (often associated with non-STEM education) in the STEM education classroom settings.

4. Methodology

Because the posed research question involved the exploration of views, attitudes, or opinions of teachers, the methodology found more suitable, appropriate, and adapted for this study was an opinion survey with close-ended questionnaire items or statements. About six (6) close-ended questionnaire items or statements (**Table 2**, first column) were prepared to survey the views, opinions, and attitudes of South Sudanese secondary school teachers about the use of humour in the classroom setting. A total of ten (10) secondary schools located within and around Juba city were surveyed, namely Juba Day secondary school, Juba Commercial, Nile Model, Rokon secondary, Supiri secondary, Rejaf secondary, Mat (Union), Hope and Future secondary schools. Sixty-five (65) South Sudanese secondary school teachers from ten (10) different secondary schools, three (3) of which were located in displaced and resettled communities, were asked to respond to the questionnaire items or statements shown in **Table 2**. This survey was in response to one of the volunteer teachers who first agreed to participate as co-teacher-researcher during the pilot study, but ended up opting out of the participation. This made the researchers to be curious and concerned about the general opinions or attitudes of South Sudanese secondary school teachers toward the use of humour in South Sudanese secondary school classrooms.

The questionnaire items or statements displayed in **Table 2** (first column) apply to the teaching and learning of mathematics because mathematics teachers are expected to be competent communicators in the subject matter, an acquired skill most mathematics teachers are not known to have mastered quite well. Mathematics teachers are often blamed and even accused, through teachers' evaluations or in the courts of

public opinions, by many of their students [6, 7, 14, 45, 47]. They are often blamed for not always well explaining or even sometimes failing to satisfactorily explain even the lower level mathematics concepts in ways that are easily understood by the students-learners, lower-level concepts but important logical mathematics concepts such as, for example, why division by zero is never allowed, why negative times negative is always positive, why is any number raised to zero power is always one but never zero, or what exactly (if anything) is a zero raised to a zero power. Most of these allegations is due to mathematics teachers' widely perceived lack of communication competence in the subject matter [45], which is compounded by the perceived difficulties of teaching and learning the subject matter [47, 51]. A teacher's perceived competency in the use of appropriate types of humour [7, 31, 43, 54] in the classroom setting is an indication of a teacher's overall communication competence. Hence, the questionnaire items or statements displayed in the first column of **Table 2** apply to the teaching and learning of mathematics in the classroom setting.

The six (6) close-ended questionnaire items or statements were initially adapted from the literature-based Interpersonal Communication Competence Scales (ICCS) [17, 24, 26, 29, 37, 55–57] which were customised to form part of the Student Opinions Survey Questionnaires (SOSQ), a 35 questionnaire items-instrument with both close and open-ended questions or statements (parts A & B) intended to measure South Sudanese secondary school student's overall interest in the course materials [1, 10]. These items were developed to assess teacher's communication competence as one of the components-dimensions of interest in mathematics from the perspectives of the students-learners and were adapted here to also assess South Sudanese secondary school teachers' opinions, attitudes or views toward the use of humour as a teaching and learning tool. The close-ended section of SOSQ, part A, namely Adapted Literature-Based Interest Survey (Scale) Questionnaires (ALBISQ), from which the six (6) close-ended items or statements were adapted, had an overall alpha of 0.87, which shows a high degree of internal consistency of the items comprising that instrument. When tested for internal consistency (see **Tables 1** and **2**), the six (6) close-ended questionnaire items or statements showed an alpha of about 0.74, which is lower than the overall alpha of 0.87, but understandably so since the Cronbach's alpha coefficient is known to get lower as the number of items or statements gets fewer [17].

The views, opinions, or attitudes of South Sudanese secondary school teachers were captured using the above mentioned six (6) close-ended questionnaire items or statements (**Table 2**), and adapted Likert-like five-point scale instrument calibrated with semantic-differential statements and indicators such as *strongly negative* or *strongly positive*, etc., and was analysed according to SOSQ method of analysis [1, 10]. Each teacher's opinions responses which indicated either positive or negative views, opinions, or attitudes on each of the six (6) questionnaire items or statements were coded, organised, and quantified by assigning numerical values or codes to qualitative indicators as follows: Strongly Agree/Negative (1), Disagree/Negative (2), Neutral (3), Agree/Positive (4), and Strongly Agree/Positive (5). The resulting numerical

Cronbach's Alpha	No. of items
0.735	6

Table 1.
Reliability statistics.

	N	Minimum	Maximum	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
q1. The use of humour by the teacher helps reduce tension, anxiety, or stress	65	1.00	5.00	4.2615	0.95651	-1.991	0.297	4.640	0.586
q2. Students feel more at ease to participate in a class where humour is used	65	1.00	5.00	4.1231	0.83867	-1.551	0.297	3.439	0.586
q3. Humour helps hold students' attention and keeps the class interesting	65	1.00	5.00	4.1846	0.86408	-1.571	0.297	3.214	0.586
q4. The use of humour helps create a positive classroom environment	65	1.00	5.00	4.0923	0.80473	-1.470	0.297	3.623	0.586
q5. Humour should not be used to embarrass, ridicule or humiliate a student	65	1.00	5.00	4.0462	1.12404	-1.047	0.297	-0.039	0.586
q6. Students are more likely to attend a class where a teacher uses humour as a learning tool	65	1.00	5.00	4.0615	0.99808	-1.586	0.297	2.710	0.586
Valid N (listwise)	65								

Table 2.
Descriptive statistics.

values or codes for each of the six (6) questionnaire items or statements corresponding to teachers' responses were then arranged and organised in a way that allows descriptive patterns of views, opinions, or attitudes to emerge as generalised average rows and columns percentages (see **Table 4**, and its attached-explanation in the Appendix), somehow a continuous analogue of a discrete five-point Likert's like-continuum scale. The rows percentages indicate an individual teacher's self-reported scores while the columns' percentages show the group's average-self-reported scores corresponding to each of the six questionnaire items or statements (From here on, drop referring to Appendix while maintaining the **Table 4** referencing).

5. Results of the survey

Table 3 below, and drop Appendix referencing after (**Table 4**, Appendix) as average-columns-percentages responses corresponding to survey questionnaire items or statements (Q1-6 or S1-6) about the use of humour in the classroom as a teaching and learning tool. Interpreting and reading **Table 3**, for example, 86% of the average opinions of the sampled South Sudanese secondary school teachers agreed that the use of humour in the classroom helps reduce tension, anxiety, or stress (Q1, column 2). Similarly, 81% of the sampled teachers' average opinions agreed that humour should not be used to embarrass, ridicule, or humiliate a student (Q5, column 6) and so on. On this opinion scale continuum, 20% cut off would have been the lowest self-reported score indicative of the would be most the negative view recorded, 60% the average-neutral view or undecided responses (60% instead of 50% as this scale is skewed to the right by 10%) and 100% the highest possible maximal positive view achieved by some individual teachers: All the average-column-percentages in **Table 3** are all above the average neutral view (60%) and the overall average mean for all the columns is a favourable 83% average positive view or teachers' agreement toward the use of humour in the classroom setting as a teaching and learning tool.

We do not have results for the opinions of the individual teacher-the co-teacher-researcher-who opted out of the research participants and whom apparent quitting motivated this survey in the first place. We tried but could not reach him as he relocated to a different state during a follow-up interview designed to record his individual opinions, a follow-up which we could not do immediately upon his drop out because it would appear like coercion since his participation was voluntary. Although the posed research question explored the general views of South Sudanese secondary school teachers, the opinions of this particular-individual teacher would be interesting to know. All the individual opinions of the surveyed 65 secondary school teachers appear as rows of percentages in **Table 4**; and their overall general views relative to the six [7] questionnaire items or statements appear as columns percentages in **Table 4**, which are captured and summarised below as **Table 3**.

N = 65	Q1	Q2	Q3	Q4	Q5	Q6	Mean
Percentages (%)	86	82	84	82	81	81	83

Table 3.

Summary of the South Sudanese secondary school teachers' views toward the use of humour in the classroom as a teaching tool, technique, or strategy.

Teacher	Q1	Q2	Q3	Q4	Q5	Q6	Total	Percentages (%)
1	1/5	2/5	4/5	4/5	2/5	2/5	15/30	50
2	3/5	4/5	2/5	4/5	3/5	4/5	20/30	67
3	4/5	5/5	4/5	4/5	5/5	4/5	26/30	87
4	1/5	2/5	2/5	2/5	5/5	1/5	13/30	43
5	5/5	4/5	5/5	5/5	4/5	4/5	27/30	90
6	5/5	5/5	5/5	5/5	5/5	5/5	30/30	100
7	4/5	4/5	4/5	4/5	4/5	4/5	24/30	80
8	4/5	4/5	4/5	4/5	4/5	4/5	24/30	80
9	5/5	4/5	4/5	5/5	5/5	4/5	27/30	90
10	4/5	4/5	4/5	4/5	4/5	4/5	24/30	80
11	5/5	4/5	5/5	5/5	5/5	5/5	29/30	97
12	5/5	5/5	5/5	5/5	5/5	4/5	29/30	97
13	4/5	5/5	4/5	5/5	5/5	5/5	28/30	93
14	4/5	4/5	4/5	4/5	5/5	4/5	25/30	83
15	4/5	4/5	5/5	4/5	5/5	5/5	27/30	90
16	5/5	5/5	4/5	4/5	5/5	4/5	27/30	90
17	5/5	4/5	5/5	4/5	3/5	4/5	25/30	83
18	4/5	4/5	2/5	4/5	4/5	4/5	22/30	73
19	5/5	4/5	5/5	4/5	4/5	5/5	27/30	90
20	4/5	5/5	4/5	4/5	3/5	4/5	24/30	80
21	5/5	4/5	5/5	4/5	4/5	5/5	27/30	90
22	4/5	2/5	4/5	2/5	4/5	4/5	20/30	67
23	1/5	1/5	4/5	1/5	5/5	1/5	13/30	43
24	5/5	4/5	4/5	4/5	5/5	1/5	23/30	77
25	4/5	5/5	1/5	3/5	1/5	2/5	16/30	53
26	4/5	4/5	4/5	4/5	5/5	5/5	26/30	87
27	4/5	4/5	4/5	4/5	5/5	4/5	25/30	83
28	4/5	4/5	4/5	4/5	2/5	4/5	22/30	73
29	4/5	4/5	4/5	4/5	2/5	4/5	22/30	73
30	5/5	4/5	5/5	4/5	4/5	4/5	26/30	87
31	4/5	5/5	4/5	5/5	4/5	5/5	27/30	90
32	4/5	4/5	4/5	2/5	5/5	2/5	21/30	70
33	5/5	5/5	5/5	4/5	5/5	5/5	29/30	97
34	5/5	5/5	4/5	4/5	4/5	4/5	26/30	87
35	3/5	3/5	3/5	4/5	5/5	5/5	23/30	77
36	4/5	5/5	4/5	4/5	4/5	3/5	24/30	80
37	5/5	4/5	5/5	4/5	4/5	5/5	27/30	90
38	5/5	4/5	5/5	3/5	5/5	4/5	26/30	87

Teacher	Q1	Q2	Q3	Q4	Q5	Q6	Total	Percentages (%)
39	4/5	4/5	5/5	4/5	2/5	5/5	24/30	80
40	5/5	4/5	4/5	4/5	5/5	4/5	26/30	87
41	5/5	4/5	4/5	5/5	5/5	4/5	27/30	90
42	5/5	5/5	5/5	5/5	4/5	5/5	29/30	97
43	4/5	4/5	4/5	3/5	4/5	4/5	23/30	77
44	5/5	5/5	4/5	4/5	5/5	5/5	28/30	93
45	4/5	5/5	5/5	5/5	5/5	5/5	29/30	97
46	5/5	4/5	5/5	4/5	2/5	5/5	25/30	83
47	4/5	4/5	4/5	4/5	2/5	4/5	22/30	73
48	4/5	4/5	4/5	4/5	4/5	5/5	25/30	83
49	5/5	4/5	5/5	4/5	2/5	5/5	25/30	83
50	5/5	5/5	2/5	4/5	5/5	4/5	25/30	83
51	5/5	4/5	5/5	5/5	5/5	4/5	28/30	93
52	4/5	4/5	4/5	4/5	2/5	3/5	21/30	70
53	5/5	5/5	5/5	5/5	5/5	4/5	29/30	97
54	5/5	4/5	4/5	4/5	4/5	4/5	25/30	83
55	5/5	4/5	5/5	5/5	4/5	5/5	28/30	93
56	5/5	5/5	5/5	5/5	5/5	5/5	30/30	100
57	4/5	4/5	5/5	4/5	5/5	4/5	26/30	87
58	4/5	5/5	5/5	5/5	5/5	4/5	28/30	93
59	4/5	4/5	4/5	4/5	4/5	4/5	24/30	80
60	5/5	4/5	4/5	5/5	4/5	5/5	27/30	90
61	4/5	5/5	4/5	4/5	5/5	4/5	26/30	87
62	5/5	5/5	5/5	5/5	2/5	5/5	27/30	90
63	4/5	4/5	4/5	4/5	4/5	4/5	24/30	80
64	5/5	4/5	4/5	4/5	2/5	3/5	22/30	73
65	2/5	2/5	4/5	5/5	4/5	4/5	21/30	70
Total	278/325	267/325	272/325	266/325	263/325	264/325	1610/1950	5366/65
Percentages (%)	86	82	84	82	81	81	83	83

Table 4.

Views of South Sudanese secondary school teachers about the use of humour in the classroom as a pedagogical toolkit for teaching and learning mathematics in South Sudan.

6. Discussion of the results

The results above appear to indicate that the average majority of South Sudanese secondary school teachers are open and eager to experiment with new teaching tools or different types of teaching techniques and strategies such as the use of humour in teaching and learning. This keenness or eagerness to welcome new teaching and

learning tools may be either because in South Sudan (being one of the newly emerging developing countries) people including teachers are hungry for education in order to catch up with the rest of the world [36, 58, 59]; or it could be due to the fact that classroom teachers have often been documented to always-generally show positive attitudes rather than negative opinions toward any research based-evidence, suggestions or new teaching and learning tools [13, 49]. This survey appears to imply that if offered any opportunities for professional growths or developments, the average majority of South Sudanese secondary school teachers may focus not only on *what* to teach (content-wise) but also explore the necessary-related pedagogy factors or dimensions such as the arts and science of *how* to teach creatively, imaginative, effectively, appropriately and reflectively in the classroom [19, 55, 56]. Teachers who tend to focus only on *what* to teach while ignoring or neglecting the *how* to teach aspects risk increasingly becoming perceived as just the *content persons* instead of being positively viewed as well-rounded professional educators. A *content person*, sometimes called a restricted or limited professional [60], is a common-low opinion jargon used in education circles or literature to describe teachers who either ignore, neglect, or just fear to explore the other necessary aspects of teaching (e.g., the *how* to teach factor) such as the teacher's creative yet effective pedagogical toolkit for teaching and learning a subject matter.

There are in general three types of teachers practicing in the classroom setting, namely the unprofessional, limited-restricted professional, and extended professional [60]. The extended professional is a continuously developed classroom teacher who regularly attends and actively participates in professional gatherings such as workshops, seminars, or academic conferences. In contrast, the unprofessional type of teacher is characterised by chronic absence from the work place, showing up to the class with unprepared or unrevised lessons, is often isolated from colleagues while at the same time hostile to students, and relies on the heavy use of corporal punishment as teaching techniques or strategy: These types of teachers tend to teach through threats, fear, and intimations as a teaching and learning strategy. The other third type of teachers, described as the limited-restricted professionals, are concerned mostly with the mastery of the content materials and/or skills often in the form of drills, repeated recitations, or rote memorisation techniques or strategies. These third types of teachers are either self-centered or concerned only with basic competence and tend to blame students for the failure to learn the materials. These types of teachers appear to have little or no continuous professional growth or development and are more often than not unimaginative. Hence, they are rigid as they appear to rely heavily on daily classroom routines as a form of teaching and learning strategy or technique in the classroom setting [60].

In contrast to the unprofessional or restricted types of teachers, the types of teachers known as extended professionals are the ones who would be expected to go beyond the technical competency of the subject matter. This is because these types of teachers would master not only *what* to teach but also *how* to teach effectively. They would take active responsibilities not only for themselves but also for their students-learners. In sum, these teachers are more often than not student-centered, adaptive, reflective, highly flexible, and independently or developmentally minded as well as creative thinkers [60]: These are the ones who would be expected to go the extra mile in terms of exploration, utilising or welcoming of humour as a possible pedagogical teaching and learning tool. This survey appears to show that the average majority of South Sudanese secondary school teachers have the potential to become student

centered-practicing extended professionals as indicated by their positive attitudes, opinions, views, or beliefs toward the proposed and alternative new ways of teaching and learning in the classroom setting. South Sudanese secondary school teachers may have diverse academic, professional, and cultural backgrounds, but their converging average positive attitudes or views toward the use of humour in the classroom setting are encouraging.

7. Recap or wrap-up remarks

This opinions study surveyed the views of South Sudanese secondary school teachers toward the use of humour in the classroom as a teaching and learning tool. It was observed that the average majority of South Sudanese secondary school teachers are not only open but keen and eager (as suggested by their overwhelmingly positive average opinions) to welcome new ways of teaching and practicing in the classroom. The expressed views, attitudes, or opinions (referring to **Tables 3** and **4**) are indicative of positive disposition toward the use of appropriate types of humour in the classroom setting. Hence, a newly proposed-alternative and equivalent method of teaching mathematics such as H-SIA appeared to be welcomed by the average majority of South Sudanese secondary school teachers. However, the extent to which the South Sudanese secondary school teachers are able to put the disposition (humour) to practice in the classroom setting is not yet known.

This opinion survey was, however, limited only to 65 South Sudanese secondary schools teachers from ten (10) secondary schools located within and around Juba city. Three out of ten (3/10) of these surveyed schools were located in displaced and re-settled communities. The survey would have been more convincing had it included representative samples from all the former ten states of South Sudan, which were then momentarily inflated into more than thirty-two (32) politically motivated-controversial states before their reinstatement back last year into the original ten (10) states plus three (3) more administrative areas. There are approximately about 70 secondary schools located within and around Juba city, with fifteen (15) of them being public or government-run schools while the rest of these schools are privately sponsored. The next study could take a look at a larger randomised sample of South Sudanese secondary school teachers and classify the teachers' views, opinions, or attitudes by the corresponding subject matters. Further study can also attempt to identify what percentage (if any) of South Sudanese secondary school teachers actually use humour in their teaching practices.

It is then recommended that classroom teachers, particularly mathematics teachers, be encouraged and always allowed a certain degree of freedom to explore and experiment with new ways of teaching and learning such as the use of humour as a teaching and learning tool. However, in order for this to be implemented effectively, it is suggested that classroom teachers be first properly trained on how to use humour appropriately, creatively, and effectively in the classroom setting.

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Appendix


Table 4 shows the details of the data analysis about how the teachers' self-reported Likert's styled scores (reflecting teachers' views, opinions, or attitudes) were arranged by questionnaire items or statements (e.g., Q1-6 or S1-6), the quantified teachers' views arranged in a rectangular array spreadsheet–excel like format, and then organised into descriptive patterns of generalised-iterated rows and columns sums average percentages (Tap et al., 2019, 2020), where the sums of the rows show individual teacher's average percentage on each of the six questionnaire items or statements. Meanwhile, the sums of the columns show groups' or teachers' average percentages on each of the six items or statements (Q1-6). On this somehow continuous analogue of a discrete Likert's five-point scale of South Sudanese teachers' opinions scale (SSTOS), the lowest opinion (which was never expressed or recorded) would have been at 20% (65/325) cut off, the medium cut off, neutral or undecided opinion was at 60% (195/325) cut off and the highest possible opinion (which was achieved by some individual teachers or outliers) was at 100% (325/325). To make the Tables more readable, the average percentages were rounded to the nearest whole numbers.

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References

- [1] Tap WD. Relative effects of a humour-supported instructional approach on interest in mathematics [among secondary school students in South Sudan re-settled communities (Unpublished Doctoral Dissertation)]. Harare: University of Zimbabwe; 2020. p. 2020
- [2] Zazkis R, Liljedahl P. Teaching mathematics as storytelling. Rotterdam/ Taipei: Sense Publishers; 2009
- [3] Torok SE, McMorris RF, Lin WC. Is humor an appreciated teaching tool? Perceptions of Professors' teaching styles and use of humor. *College Teaching*. 2004;52:14-20
- [4] Grawe PH. A meeting of minds: An alternate humor for teaching mathematics to non-stem majors. *Journal of Humanistic Mathematics*. 2016;6:220-234
- [5] Oosthuizen RM. Resilience as moderator between workplace humour and well-being, a positive psychology perspective. In: Vanderheiden E, Mayer CH, editors. *The Palgrave Handbook of Humour Research*. Switzerland, Cham: Springer Nature, Palgrave Macmillan; 2021. pp. 263-287
- [6] Deiter R. The use of Humor as a Teaching Tool in the College Classroom. 2015. Available from: <https://www.merlot.org/merlot/viewMaterial.html?id=329565> [Accessed: October 15, 2015]
- [7] Steele KE. The positive and negative effects of humor in the classroom setting (ERIC Document Reproduction Service No. ED426929). s.l. : ERIC, 1998. Dissertations/Theses-Master Theses (042); 1998
- [8] St-Amand J, Smith J, Beland S, Moreau D. Understanding teacher's humor and its attributes in classroom management: A conceptual study. *Educational Sciences: Theory and Practice*. 2021;21(2):115-130
- [9] Garner RL. Humor in pedagogy: How ha-ha can lead to aha! *College Teaching*. 2006;54:177-180
- [10] Tap WD, Mtetwa DK, Vere JC. Using humor for generating and maintaining Interest in mathematics among secondary school students in South Sudan Re-settled communities. *African Journal of Research in Mathematics, Science and Technology Education*. 2019;23:244-253
- [11] Struthers J. The case for mixed methodologies in researching the teacher's use of humour in adult education. *Journal of Further and Higher Education*. 2011;35:439-459
- [12] Repass JT. Making test anxiety a laughing matter: A quantitative study (Unpublished doctoral dissertation, University of Keiser, ProQuest 10261256). 2017. Using humour for generating and maintaining interest in mathematics among secondary school students in South Sudan re-settled communities; 2017
- [13] Elkhayma R. Attitudes toward the use of humor: A case study of Moroccan secondary school teachers. In: *Proceeding of IASTEM International Conference*. Rabat: IASTEM; 2021
- [14] Godbey C. Mathematics anxiety and the underprepared student (ERIC Document Reproduction Service No. ED426743). s.l. : ERIC, 1997. Guide-Classroom-Teacher (052); 1997.
- [15] Durik AM, Matarazzo KL, Delayey ML. The effects of humorous instructional materials on interest in

mathematics task. Motivation and Emotion. 2010;**34**:293-305

[16] Tews MJ, Jackson K. Fun in the college classroom: Examining its nature and relationship with student engagement. College Teaching. 2015;**63**:16-25

[17] Kromka SM, Goodboy AK. Classroom storytelling: Using instructor narratives to increase student recall, affect, and attention. Communication Education. 2019;**68**:20-43

[18] Green MC. Storytelling in teaching. Psychologicalscience.org. 2015. Available from: <http://www.psychologicalscience.org/observer/getArticle.cfm?id=1562> [Accessed: September 5, 2015]

[19] Maguire J. Creative Storytelling: Choosing, Inventing, and Sharing Tales for Children. New York: The Philip Lief Group; 1985

[20] Eggleton PJ. Motivation: A key to effective teaching. Mathematics Educator, Two-Year College Mathematics Journal. 1992;**3**:1-12

[21] Schukajlow, S (2015.) Effects of enjoyment and boredom on students' interest in mathematics and vice-versa. Hobart, Australia: PME, 2015. Proceedings of 39th Psychology of Mathematics Education (PME) Conference. pp. 137-144.

[22] Weber K. Mathematical humor: Jokes that reveal how we think about mathematics and why we enjoy it. Mathematical Intelligencer. 2016;**38**:56-61

[23] Masek A, Hashim S, Ismail A. Integration of the humor approach with student's engagement in teaching and learning sessions. Journal of Education for Teaching. 2018;**45**:228-233

[24] Wanzer MB, Frymier AB. The relationship between student perceptions

of instructor humor and students' reports of learning. Communication Education. 1999;**48**:48-62

[25] Warwick J. An experiment relating humor to student attainment in mathematics. PRIMUS. 2009;**19**:329-345

[26] Karlin NJ, Machleu M. The relationship between instructor use of different types of humor and student interest in the course material. College Teaching. 2017;**65**:192-200

[27] Goodman-Scott E. Enhancing student learning by "Building Caring Climate": School counsellors' experiences with classroom management. Professional School Counselling. 2019;**22**:1-12

[28] Gadanidis G, Gadanidis JM, Huang Y. Using humor to gain mathematical insights. National Council of Teachers of Mathematics (NCTM). 2005;**10**:244-250

[29] Tap WD, Mtetwa DK, Vere JC. Types of humour categories used to generate and maintain interest in mathematics among secondary school students in South Sudan's displaced and re-settled communities. Journal of Education and Training Studies (JETS). 2021;**9**:14-23

[30] James DL. Split a gut and learn: Theory and research (ERIC Document Reproduction Service No. ED458671). s.l.: ERIC, 2001. Information analysis (070); 2001

[31] Weimer M. Humor in the classroom: 40 years of research. Faculty Focus. 2013. Available from: <http://www.facultyfocus.com/articles/effective-teaching-strategies/humor-in-the-classroom-40-years-of-research> [Accessed: September 5, 2016]

[32] McGraw P., Warner J. What, Exactly, Makes Something Funny? A Bold New Attempt at a Unified Theory

of Comedy. Slate.com. 2001. Available from: <http://www.slate.com/articles/arts/culturesbox/features/2014> [Accessed: September 9, 2019]

[33] Morreall J. Humor, philosophy and education. *Educational Psychology and Theory*. 2014;**46**:120-131

[34] McNeely R. Using humor in the classroom: Laughter has the power to fuel engagement and help students learn. National Education Association. 2019. Available from: <http://www.nea.org/tools/52165.htm> [Accessed: October 15, 2019]

[35] Nishad TM. Mathematical theology—A new approach. *International Journal of Mathematics Trends and Technology*. 2021;**67**:68-70

[36] Kuek JC et al. Hunger for an Education: A Research Essay on the Case of South Sudan and the Voice of Its People. *Forum for International Research in Education (FIRE)*. 2014;**1**(2):1-12. DOI: 10.18275/fire201401021004

[37] Anderson JF. Teacher immediacy as a predictor of teaching effectiveness. [ed.] B. D. Ruben. 1, 1979. *Communication Yearbook*. 1979;**3**:534-559

[38] Spitzberg BH. Communication competence as knowledge, skill and impression. *Communication Education*. 1983;**32**:323-329

[39] Rubin RB, Martins MM. Development of a measure of interpersonal communication Competence. *Communication Research Reports*. 1994;**11**:33-44

[40] Richmond VP. Communication in the classroom: Power and motivation. *Communication Education*. 1990;**39**: 181-195

[41] Hartley P. *Interpersonal communication*. 2nd ed. London and New York: Routledge; 1999. p. 1999

[42] Anders SL, Tucker JS. Adult attachment style, interpersonal communication competence, and social support. *Personal Relationships*. 2000;**7**:379-389

[43] Wanzer MB, Frymier AB, Irwin J. An explanation of the relationship between instructor humor and student learning: Instructional humor processing theory. *Communication Education*. 2010;**59**:1-18

[44] Kane J. *Education, information, and transformation*. 6th ed. Prentice-Hill: Upper Saddle River, NJ; 1999

[45] Ornstein AC, Behar-Horenstein LS, Pajak EF. *Contemporary Issues in Curriculum*. 3rd ed. Boston: Allyn and Bacon; 2003. p. 2003

[46] Driscoll MP. *Psychology of Learning*. 3rd ed. Boston: Pearson; 2003. p. 2005

[47] Nyaumwe L. Professional development of secondary school mathematics teachers through collaborative reflection in pre-service and in-service learning context (Unpublished doctoral dissertation, University of Zimbabwe); 2008

[48] Chatzopoulos A, et al. Innovative robot for educational robotics and STEM. In: Kumar V, Troussas C, editors. *Intelligent Tutoring Systems: Lectures Notes in Computer Science*. Vol. 2020. Switzerland, Cham: Springer; 2020. pp. 95-104

[49] Vlasopoulou M, Kalogiannakis M, Sifaki E. Investigating teachers' attitudes and behavioral intentions for the impending integration of STEM education in primary school. In: Papadakis S, Kalogiannakis M,

editors. Handbook of Research on Using Education Robotics to Facilitate Student Learning. Vol. 2021. Hershey, PA: IGI Global; 2021. pp. 235-256

[50] Dorouka P, Papadakis S, Kalogiannakis M. Tablets and apps for promoting robotics, mathematics, STEM education and literacy in early childhood education. *International Journal of Mobile Learning and Organisation*. 2020;**14**:255-274

[51] Papo WD. Effective teaching and learning in large classes at tertiary institutions (Unpublished doctoral dissertation, Rand Afrikaans University); 1997

[52] Fitriah F. Appropriate and inappropriate uses of humor by teachers and the effects of it in learning. *Linguistics, Literature, and Language Teaching (LET)*. 2012;**2**:1-7

[53] Banas J, et al. A review of humor in educational settings: Four decades of research. *Communication Education*. 2011;**60**:115-144

[54] Winsor MS, Kirwan JV, Ssebagala L. What do we know about secondary mathematics teacher preparation in the United States? *The Mathematics Educator*. 2018;**27**:73-106

[55] Wardman NP. umour or humiliation? When classroom banter becomes irresponsible sledging in upper-primary school contexts. *Discourse: Studies in the Cultural Politics of Education*. 2020;**1**:1-12

[56] Puggina AC, Silva MJ. Interpersonal communication competence scale: Brazilian translation, validation and cultural adaptation. *Acta Paul Enferm*. 2014;**27**:108-114

[57] Palacious A, Arias V, Arias B. Attitudes toward mathematics:

Construction and validation of a measurement instrument. *Revista de Psicodidactica*. 2014;**19**:76-91

[58] Masungu KA. Delphi Survey Process on a Decentralized Education System in Southern Sudan (Dissertation Abstract International). *Dissertation Abstract International*; 2012

[59] Brown G. Education in Southern Sudan: Investing in a Better Future. London, England: Centre for Universal Education, Brookings Institute; 2011. p. 2011

[60] Davies L, Harber C, Schweisfurth M. Democratic Professional Development. Birmingham: CIER/CFBT; 2005