

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,300

Open access books available

171,000

International authors and editors

190M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Chapter

Using Information and Communication Technology and Developing the Creative Abilities of Social Work Students

Emad Saleh and Magdy Mostafa

Abstract

The research problem is to identify the impact of using information and communication technology (ICT) on developing the creative abilities of social work students. The research employed a descriptive-analytical approach in which a sample of social work students was surveyed. Field data was collected using a scale developed by the researchers to measure the impact of students' use of ICT on developing their creative abilities. After establishing the validity and reliability of the scale, data collection began in December 2022 when an electronic link was sent to all social work students *via* the official university mail. After processing the data using SPSS, the results were extracted, and a final research report was written. The results confirmed the students' high readiness to use ICT, while their reliance on ICT improved their academic and personal performance. In addition, the research results confirmed that students' use of ICT effectively influenced the development of their creative abilities. As a result, the study recommends that universities should focus on adequately training students and faculty members in the use of various types of ICT and encourage them to use them.

Keywords: social work, students, information communication technology (ICT), readiness, creative abilities

1. Introduction

The current era has witnessed an enormous knowledge and information revolution in all fields of science that significantly contributed to stimulating many essential developments in all aspects of life. Technological advancement, among other key aspects, has developed at an astonishing pace, from which societal institutions, especially in the educational field, should benefit. As a result, universities have rushed to capitalize on this tangible technological advancement by setting up establishing computer laboratories and connecting them to the Internet, making use of various programs, applications, and e-learning systems. Specialized laboratories have also been set up to provide training opportunities for students studying psychology,

geography, languages, or social work. Technological advances have also been used in equipping and preparing classrooms for the educational process by providing computers, data display devices, and audio and video systems that enable students in all disciplines to make the most of the educational opportunities available. Advanced technology is no longer limited to developing hardware and technical and electronic equipment, nonetheless; it has been achieved in the field of software and applications. Consequently, most universities are rapidly incorporating computer-related courses into the study plans of students in all disciplines so that they can benefit from this significant progress. Furthermore, one cannot ignore the unprecedented growth of the Internet in the 1980s, as its rate of spread had the greatest impact across all scientific fields at the daily and institutional levels. It also influenced the rate of technological progress across all sectors, including education [1].

In addition to scientific knowledge, higher education institutions seek to impart students with specialized and life skills, as well as creative abilities. Hence, the current research seeks to identify the benefit of students majoring in social work to information and communication technologies, as one of the methods of obtaining professional and life knowledge and skills, and employing them in developing their creative abilities. This raises a number of questions related to students' readiness to use information and communication technologies and the extent to which they benefit from them.

2. Research problem

Social work, as a profession, is relatively new. Despite its modernity, it has established a professional and value framework, allowing it to continue and flourish while delivering professional services at all levels of professional activity (micro, medium, and macro) with high efficiency and adequacy. Consequently, it gained societal recognition as an essential profession among professions operating in human societies, which enabled it to expand at the levels of social work education institutions and professional practice organizations in all areas of life and work, while the emergence of professional federations and unions have represented and enabled them to coexist with program planning and design at local, national, and international levels [2]. As a result, many institutions focused on social work education and aimed to monitor and support developments, topped by the Council on Social Work Education (CSWE). The Council on Social Work Education (CSWE) calls for the integration of computer technology into social work education, but there are no explicit standards for integration or student learning [3].

ICT and the Internet have advanced rapidly, to be not only more efficient, faster, and of higher quality but also easily accessible at any time and from any location for a low cost. As a result, education programs and applications in general, and e-learning in particular, have advanced rapidly. Programs and applications have made it easier for teachers and students to complete many educational tasks and assignments without difficulty or stress, providing them with excellent opportunities for excitement and attraction. Information and communication technologies (ICTs) are electronic tools used to transmit, process, and store information [4]. Not long ago, academic research, including social work research, turned its interest to discuss the relationship between new technologies and their use in the education of social work students. According to a study by Faux and Black-Hughes (2000), social

work students prefer traditional teaching methods, as their performance improved when they were taught face-to-face rather than using Internet-based technologies [5]. With the spread of ICT, positive attitudes toward its use in social work education have increased. The findings of some recent studies differ from those of earlier studies. For example, in a study conducted in Trinidad and Tobago, semi-structured interviews were conducted with eight social work educators from four tertiary institutions in Trinidad and Tobago that offer degrees in social work. Results indicate that previous experience with Internet-based technologies influenced the perspectives of social work educators and ultimately the range and mode of technologies used. Although the debate on the role of such technologies in social work education in Trinidad and Tobago has not been resolved, the aforementioned research found that there is a movement toward consensus about the utility of Internet-based technologies [6]. Although ICTs and the growth of the Internet are not without problems, the fact remains that both will continue to shape the global community. Other disciplines have recognized the importance of ICT and consider it a key part of professional development [4].

ICT and the Internet are two of the most significant products of human creativity that have a significant positive impact on all social sciences, academic fields, and professions. The creative abilities of students in all disciplines are expected to develop and improve as technology becomes more prevalent in education. As a result, the social work profession has prioritized the development of the creative abilities of its students. Social work is concerned with the gifted creators and innovators, an interest that frequently extends to the work of social workers in educational institutions, particularly basic education institutions. Social work aims at discovering creators and innovators, identifying their needs, assisting them in achieving psychological compatibility and social adjustment, enabling them to face difficulties and problems, and implementing enrichment programs that develop their capabilities. Furthermore, the interest in creators is not limited to the social work profession, as this category is of great interest and care in both developing and underdeveloped societies. This could be due to the high-quality achievements of this category in a variety of social, economic, technical, artistic, literary, and political fields.

A society loses the most valuable resources of its renaissance if it does not find exceptional creators and innovators and provide them with the tools they need to grow and use their energies in a variety of spheres of existence. Consequently, professional development programs must foster social work's interest in innovation. These programs shall be based on multidimensional education that emphasizes memorability, comprehension, analysis, application, evaluation, and creativity. In professional practice, the social worker's approach to various problems and situations of individuals, families, institutions, and societies depends on professional processes. These processes include understanding the situation, analyzing and evaluating its various dimensions, and evaluating available alternatives, all of which must be creative because the cases and situations the social worker deals with are not typical but unique.

Finally, to adequately prepare future social workers, social work education needs to place greater emphasis on developing students' creative abilities. ICT is one of the main factors that can help students develop their creative abilities. Based on the above, the researchers define the research problem as determining the impact of social work students' use of ICT on the development of their creative abilities.

3. Research goals

The main objective of the research is to determine the impact of social work students' use of ICT on their creative abilities. This objective is divided into the following sub-objectives:

1. To identify the readiness of social work students to use ICT.
2. To pinpoint the aspects and level of development as a result of reliance on ICT.
3. To recognize the most actual key practices for students when using ICT in the educational process.
4. To determine the extent of the impact of the use of ICT and the development of creative abilities of students of social work.

4. Research questions

The research aims to answer the following main question: What impact does social work students' use of ICT have on developing their creative abilities? This question is divided into the following sub-questions:

1. What is the level of readiness of social work students to use ICT?
2. What aspects and levels of development result from the use of ICT?
3. What is the nature of the actual practices of using ICT among social work students?
4. To what extent does the use of ICT affect the development of creative abilities of social work students' abilities?

5. Main research concepts

5.1 Creativity

Although creativity, as a term, is commonly used in our lives today, it is still one of the problematic terms. In its simplest definition, creativity is the individual's transferable and developable ability to think freely, to examine complex problems and situations, and to reformulate the elements of experience into new patterns by presenting the greatest possible number of alternatives for reformulating this experience, using a variety of appropriate methods for the situation that the individual faces, so that these new patterns are characterized by modernity in relation to the individual and the society in which he/she lives. Creativity can also be described as the capacity to reason to achieve a diverse and new item that can be implemented, whether in science, arts, literature, or other fields [7].

On the other hand, Barker defined creativity as the mental processes and skills that result in an original product of value or quality, which includes thinking that goes beyond what is already known and results in original ideas and novel solutions to

existing problems [8]. Tierney and Lanford pointed out that creativity and innovation are two terms that are closely related, and carry multiple and overlapping meanings. Creativity is the ability to develop a new idea, while innovation is the application of the new idea or solution to the problem; innovation relates to the material part associated with the implementation or transformation from idea to product. They also emphasized that innovation, like creativity, is one of the key components of HEIs, achieved against the background of a creative environment that stimulates the creation of innovative works. They added that the axes for the development of education in the twenty-first century must include the development of innovation across three main axes: innovation in scientific research, innovative educational methods in the educational process, and innovative administrative structures in academic institutions [9].

Higher education development experts refer to creativity as the key to effective learning at undergraduate and postgraduate levels (Nissim, Weissblueth, Scott-Webber, & Amar, 2016), (Jahnke, Haertel, & Wildt, 2017), and (Rampersad & Patel, 2014) [10–12]. Livingston confirmed the above argument and considered creativity as a key skill that benefits a person throughout his or her life and is also relevant for students in higher education. He added that creativity is directly related to the development of students' ability to acquire knowledge and skills in a global cultural reality rich in new levels of study, research and investigation, cooperation, interdependence, and integration of knowledge and skills, and incorporation of information into new creative systems [13]. Jackson & Show emphasize that creativity is one of the daily educational requirements in universities, as the educational process aims to: “generate ideas and alternatives, find ways to investigate complex problems, institutions, systems and patterns, think innovatively, integrate ideas and objects in new ways, and find innovative solutions that result from using creative ways of thinking and acting” ([14], p. 105). Hence, Sheridan-Rabideau, an education expert for academic institutions, describes creativity as “the cultural wealth of the twenty-first century” ([15], p. 54).

5.2 Information and communication technology

ICT has become an integral part of our daily lives as most people use it, including researchers and experts, professionals, politicians and economists, pupils and students, and even the general public. They are also used for various purposes, for example, scientific, social, economic, political, and recreational. However, there is no universal valid definition of ICT. Various definitions define ICT as the sum of all devices, networking components, applications and systems that combined allow people and organizations (i.e., businesses, nonprofit organizations, governments, and criminal enterprises) to interact in the digital world [16].

ICT can be defined as the convergence of electronics, computing, and telecommunications. It has unleashed a tidal wave of technological innovation in the collecting, storing, processing, transmission, and presentation of information that has not only transformed the information technology sector itself into a highly dynamic and expanding field of activity-creating new markets and generating new investment, income, and jobs but also provided other sectors with more rapid and efficient mechanisms for responding to shifts in demand patterns and changes in international comparative advantage, through more efficient production processes and new and improved products and services.

UNESCO defines ICT as a set of technological tools and resources used to transmit, store, create, share, or exchange information. These technological tools and resources include computers, the Internet (website, blogs, and emails), live broadcasting

technologies (radio, television, and webcasting), recorded broadcasting technologies (podcasting, audio, and video players), and storage devices and technology (fixed or mobile, satellite, Visio/video-conferencing, etc) [17].

The term information and communication technology (ICT) is generally accepted to mean all technologies that, in combination, allow people and organizations to interact in the digital world. The importance of ICT for economic development and business growth has been so monumental, in fact, that it is seen as a precursor to what many call the Fourth Industrial Revolution (4IR). ICT also underpins broad shifts in society, as individuals en masse are moving from personal, face-to-face interactions to ones in the digital space. This new era is frequently termed the digital age. Therefore, the ICT system includes the following components: hardware, software, data, the Internet, transactions, communication technologies, and cloud computing.

ICT is employed in many different areas, the most important of which are commerce, business, space, the government sector, daily life, and education. According to numerous studies, the use of ICT in education has contributed to providing a reasonable level of education for many students in developing societies. ICT-related tools and facilities include radio, television, computers, the Internet in classrooms and computer labs, external computer centers, smartphones, and tablets [18].

In the light of the above definitions, creative abilities of students can be summarized as follows:

1. Free and open thinking skills.
2. The desire to address complex problems and situations.
3. The ability to generate new ideas from the available knowledge.
4. Providing possible alternatives for different situations.
5. Unconventional thinking patterns such as critical thinking.
6. The ability to find innovative new solutions to situations and issues.
7. Better use of abilities to improve academic performance.
8. Maintaining cooperation with colleagues.
9. Finding connections and integration between information and knowledge.

6. Research importance

The importance of the research is demonstrated by emphasizing the critical role of ICT in teaching and learning processes at the university level. Moreover, the results are expected to draw faculty members' attention to the positive impact of using ICT in developing students' creative abilities and their interest in encouraging students to use it. Finally, because of the positive impact of ICT on the educational process, the results will encourage faculty members to use ICT in teaching and research.

7. Research methodology

The research used a descriptive-analytic approach, applied in a comprehensive social survey method to all social work students (approximately 200 students) classified as pure social work, major social work, or minor social work. The researchers developed a scale to assess how ICT affects students' creative abilities. The scale was evaluated by presenting it to eight sociology and social work professors. From 13 December 2022 to 23 December 2022, all social work students received an electronic link to the scale *via* university mail. However, this number only represents the research sample because the researchers only received responses from 90 students. Students were reminded to fill out the scale three times during the ten days. After data processing, Cronbach's alpha internal consistency parameters were measured to ensure the reliability of the scale. The result was 0.95, indicating a high level of reliability. The researchers then proceeded to complete the analysis and draw conclusions.

8. Field data analysis

The researchers will attempt to answer the research's main questions through the analysis that follows. But first, in the following sections, an accurate description of the research sample will be given, as well as a demographic description in terms of gender distribution, distribution over the academic years, and distribution based on the nature of their social work specialization, and the average study rates of the research sample. The field data is then analyzed to answer the main questions, leading to the extraction of the relationship and nature of the impact of students' use of ICT on developing their creative abilities.

8.1 Description of the research sample

The research sample consisted of 58.9% females and 41.1% males, with an average age of 21.43 years and a cumulative grade point average (GPA) of 2.89. The sample included students from all years of study. Fourth-year students had the highest percentage of participants (34.4%), followed by fifth-year students (32.2%), third-year students (17.8%), second-year students (10.0%), and finally, first-year students (10.0%). 5.6% only. The **Table 1** below shows the gender distribution of students by academic year.

The distribution of the research sample by area of study in social work is shown in the **Figure 1** below. It is evident that pure social work students formed up the largest percentage of the sample 44.4%, followed by minor social work students at 28.9%, and finally major social work students at 26.7%.

8.2 Students' readiness to use ICT

The first research question, that is, "what is the level of readiness of social work students to use ICT?" is answered in the following sections. It can be inferred from the results that the students mastered computer skills to a very high degree, as their skills scored an average of 4.43 out of 5, which confirms the high level of computer literacy as one of the most important techniques of ICT. The following **Table 2** also reflects the variation in the level of the students' proficiency in these skills.

Year		Gender		Total
		Male	Female	
First	Count	2	3	5
	% of total	2.2%	3.3%	5.6%
Second	Count	5	4	9
	% of total	5.6%	4.4%	10.0%
Third	Count	4	12	16
	% of total	4.4%	13.3%	17.8%
Fourth	Count	11	20	31
	% of total	12.2%	22.2%	34.4%
Fifth	Count	15	14	29
	% of total	16.7%	15.6%	32.2%
Total	Count	37	53	90
	% of total	41.1%	58.9%	100.0%

Table 1.
Gender distribution of students by academic year.

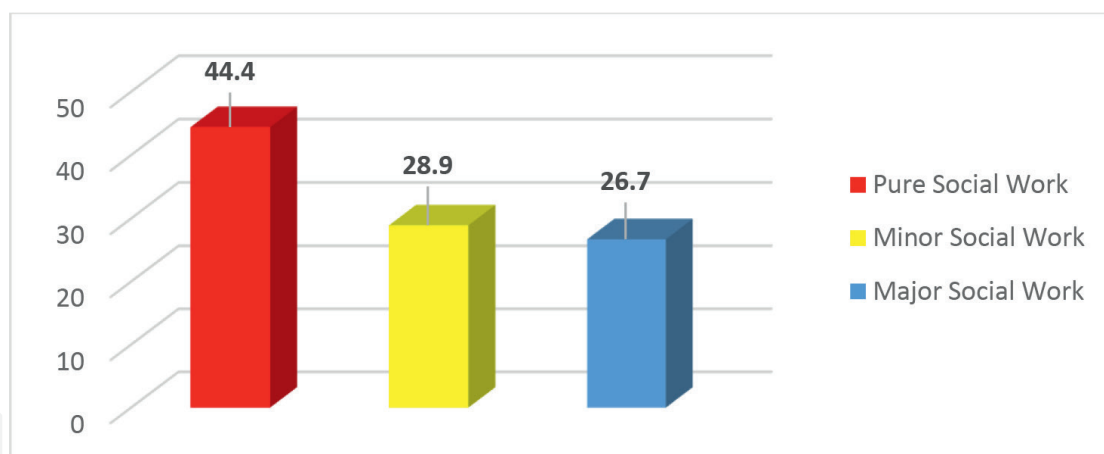


Figure 1.
Distribution of students by social work specialization.

The approximate estimate of the average daily number of hours spent using ICT tools to conduct academic tasks was 3.59 hours per day, while the highest number of hours of use reached 10 hours, and the lowest number of hours of use was only one hour per day.

Students were asked whether they had taken university courses to develop abilities and skills in using ICT. The majority of students (86.7%) confirmed that they had taken such courses, while 13.3% stated that they had not. The average number of courses taken by a student to develop their ability to use ICT was 1.73 courses. From our point of view, this average reflects the inadequacy of these courses. Hence, we recommend that the university provide more opportunities for students to take courses related to developing skills and abilities to use ICT. For the extent to which the university provides suitable laboratories for training students to use ICT, the majority of students (90.0%)

		Frequency	Percent (%)
Valid	Very good skill	31	34.4
	Good skill	29	32.2
	Intermediate skill	16	17.8
	Excellent skill	13	14.4
	Weak skill	1	1.1
	Total	90	100.0

Table 2.
 Student computer proficiency.

reported that these types of laboratories are available at the university, while 10.0% believed that these laboratories are insufficient to fulfill their mandate role.

The research team also enquired about the students' use of ICT programs and applications. The following **Figure 2** shows that the majority of students (96.7%) use these technologies, while a significantly low percentage of 3.3% indicated that they had never used them before. The remaining part of the analysis of the results, thus, will focus on those who have already used ICT during their courses, while those who have not used them are excluded, namely, the sample consists of only 87 respondents (N = 87).

The questionnaire also queried whether students had participated in training courses to develop their ICT-related skills; a percentage of 81.6% confirmed that they had not participated in any such courses, while 18.4% reported that they had previously participated to develop their ICT-related skills. In terms of the type of courses students most benefit from in relation to ICT, the majority (82.8%) asserted that they benefit from all types of courses, while 10.3% stated that they only benefit from courses related to college requirements, and 4.6% confirmed that they benefit from courses related to university requirements. The rest of the results are included in the following **Table 3**.

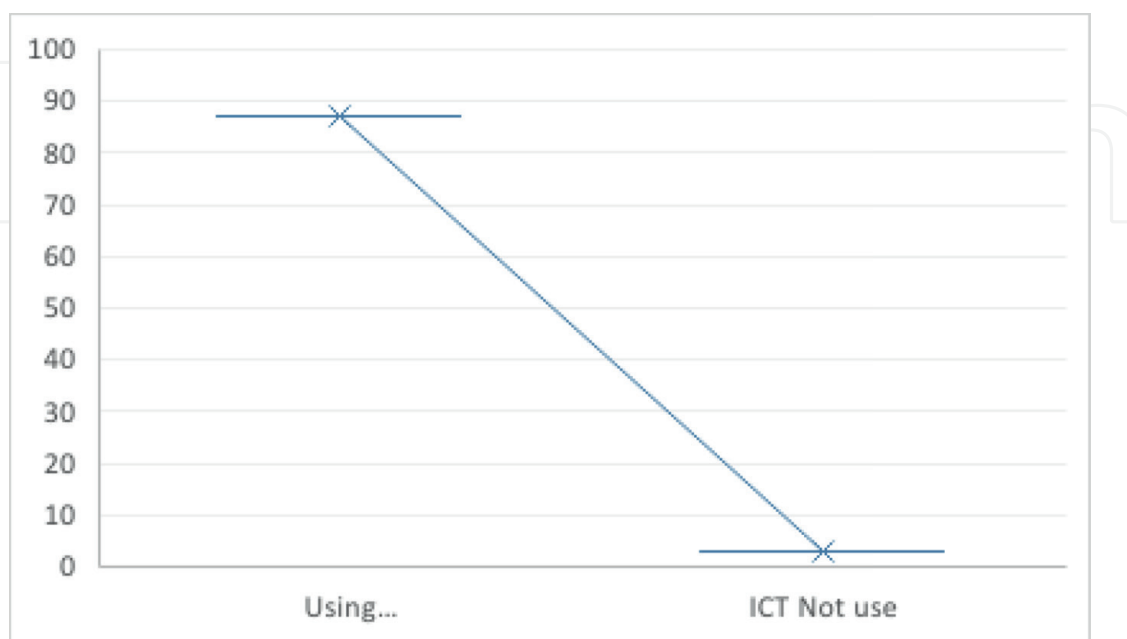


Figure 2.
 ICT usage.

		Frequency	Percent (%)
Valid	All courses	72	82.8
	College requirements	9	10.3
	University requirements	4	4.6
	Minor social work	1	1.1
	Never used	1	1.1
	Total	87	100.0

Table 3.
Types of courses that students have benefited from ICT.

		Frequency	Percent (%)
Valid	Strong	43	55.8
	Average	31	40.3
	Slightly	3	3.9
	Total	77	100.0

Table 4.
Level of development of the students' performance as a result of using ICT.

The results of the field data analysis showed a positive effect of the students' collaboration with their colleagues on preparing assignments (presentations – research – reports) (N = 87), based on 88.5% of the students, a percentage that may be attributed to the students' realization of a significant growth in their ICT-related abilities and skills, and their impact on their performance in terms of the assignments in academic courses. The following **Table 4** also illustrates the level of improvement that has occurred in terms of the students' performance as a result of using ICT, as approximately half of the students (51.7%) emphasized that the effect of using ICT was strong, while 41.4% confirmed that there was a moderate effect, and a minority of 6.9% believed that the effect was limited.

8.3 Level of development as a result of reliance on ICT

Concerning aspects of the development of the students' performance in academic courses as a result of reliance on ICT, the results included in the following **Figure 3** reflect the quality and level of development, as the use of ICT led to the development of multiple skills among students, for the average of development reached 22.47, while the relative strength of development reached 94%. Therefore, development in terms of the students' skills is considered very strong. We can draw from the previous **Figure 2** that the highest level of development lies in research skills as it climbed to 83%, then thinking skills which scored 76%, while the lowest level was in the development of personal skills at 70%.

8.4 ICT systems, programs, and applications

In relation to the third question related to the nature of actual practices of ICT among social work students, the analysis showed the students' dependence on many ICT systems, programs, and applications for complete learning processes (presentations, implementation of reports, assignments, statistical analyses, etc.). The

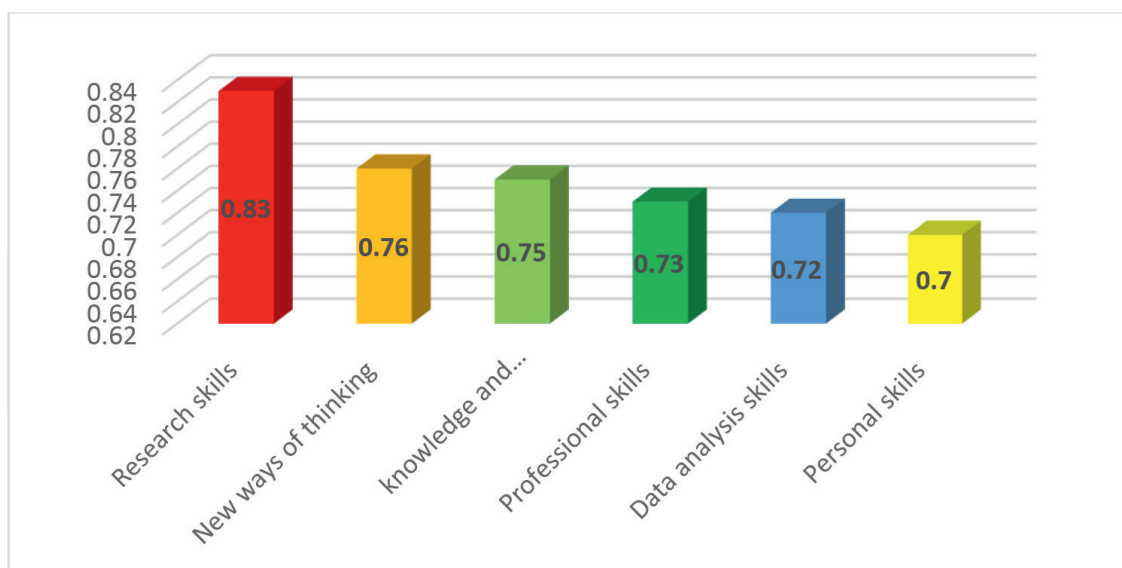


Figure 3.
 Level of development as a result of reliance on ICT.

ICT	Mean	Std. deviation	Relative mean	Ranking	Usage level
Word	2.92	0.27	0.97	1	Very strong
PowerPoint	2.85	0.36	0.95	2	
Moodle	2.72	0.50	0.91	3	
PDF	2.68	0.49	0.89	4	
Google Meet	2.24	0.63	0.75	5	Strong
Social work websites	2.18	0.76	0.73	6	
Educational films	2.05	0.75	0.68	7	
Videos-Pics	2.00	0.72	0.67	8	Acceptable
Kahoot	1.99	0.56	0.66	9	
Zoom	1.70	0.65	0.57	10	
Excel	1.48	0.50	0.49	11	Acceptable
SPSS	1.45	0.54	0.48	12	
Prezi	1.40	0.58	0.47	13	
Relative mean = 0.77		Mean = 27.67		Std. deviation = 3.81	

Table 5.
 ICT systems, programs, and applications.

following **Table 5** shows these systems and applications and the degree¹ of their use by students.

Table 6 shows that the use of ICT systems, applications, and programs varies among the students. For example, programs such as Word, PowerPoint, Moodle, and PDF were “heavily” used, with a relatively average usage of more than 80%. Moreover,

¹ To determine the levels of relative strength or relative averages that will result from the analysis of field data for the current research, the researchers will use the following criterion: weak (less than 50%), acceptable (from 50% to less than 65%), strong (from 65% to less than 80%), and very strong (more than 80%) [19].

ICT Devices	Mean	Std. deviation	Relative mean	Ranking	Usage level
Multimedia laptops, notebooks, and computers	4.79	0.53	0.96	1	Very strong
Smartphone	4.75	0.58	0.95	2	
Internet	4.74	0.58	0.95	3	
local information network	4.71	0.61	0.94	4	
Internet connection with personal computers	4.67	0.56	0.93	5	
Digital libraries	4.43	0.83	0.89	6	
Email, newsgroups, discussion boards, and chat	4.38	0.81	0.88	7	
Online databases	4.14	1.01	0.83	8	
Video conferences	3.25	0.94	0.65	9	Strong
Digital/video cameras	3.16	0.87	0.63	10	Acceptable
Diskettes, CDs, and DVDs	2.82	1.05	0.56	11	
Interactive TV and radio	2.77	1.03	0.55	12	
Relative mean = 81.0%	Mean = 48.60		Std. deviation = 5.06		

Table 6.
Students' use of ICT devices in educational processes.

some programs and applications, such as Zoom, Excel, SPSS, and Prezi, were moderately used, where the relative average of use was less than 65%. For more details, see **Table 6**. The researchers believe that the type of specialization has a significant impact on students' preference for certain applications and programs over others.

8.5 Students' use of ICT devices in educational processes

Table 7 provides an overview of the ICT devices students use to undertake academic assignments, where the levels of use of technologies varied. For example, students relied on certain devices very strongly, such as multimedia laptops, notebooks, computers, smartphones, and the Internet, where the relative average of use was over 80%. The relative average of use for some devices of limited use was less than 65%. Examples of these devices are video conferences, digital/video cameras, diskettes, CDs, DVDs, and interactive TV and radio. The researchers explain that the low level of use of these devices may be attributed to several reasons, the most important of which is that ICT technology requires a high level of training and skills to benefit from its technological capabilities, in addition to the fact that the nature of specialization of social work may not require high levels of technological devices.

8.6 The impact of ICT on developing creativity abilities

Regarding the answer to the main question of the research concerned with identifying the impact of the students' use of ICT on developing their creative abilities.

The impact of ICT	Mean	Std. deviation	Relative mean	Ranking	Level
Obtaining information and data from its original sources	4.56	0.66	0.91	1	Very Strong
Providing the level of effort necessary to obtain information and data	4.55	0.64	0.91	2	
Saving the necessary time to obtain information and data	4.55	0.66	0.91	3	
Presenting data and information in a creative way	4.53	0.66	0.91	4	
Obtaining necessary information for the study	4.49	0.70	0.90	5	
Creating novel ways of displaying data and information	4.43	0.77	0.89	6	
Gaining confidence when making presentations	4.39	0.78	0.88	7	
Increased ability to conduct a detailed search for topics	4.39	0.77	0.88	8	
Gaining the skill of presenting information in a more interesting and effective way	4.36	0.73	0.87	9	
Facilitation of information updates	4.34	0.70	0.87	10	
Thinking in a more creative way	4.34	0.73	0.87	11	
Maintaining motivation toward achievement and achieving more successes	4.31	0.70	0.86	12	
Acquiring a new way of thinking	4.31	0.75	0.86	13	
Gaining the appreciation and praise of colleagues	4.30	0.86	0.86	14	
In general, I feel that I have creative abilities	4.28	0.79	0.86	15	
Accessing multiple visions, experiences, and perceptions	4.26	0.83	0.85	16	
Identifying innovative solutions in areas of study and life	4.26	0.75	0.85	17	
Gaining the appreciation and praise of professors	4.23	0.89	0.85	18	
Generating new ideas and visions	4.21	0.90	0.84	19	
The ability to analyze the addressed problems and issues	4.16	0.85	0.83	20	
Maintaining flexibility when addressing situations and events	4.09	0.95	0.82	21	
Increasing the semester and cumulative achievement rate	3.89	1.02	0.78	22	Strong
Relative Mean = 0.87	Mean = 95.24		Std. deviation = 11.95		

Table 7.
The impact of ICT on increasing creativity of social work students.

The following **Table 7** reflects an effective positive effect of the students' use of ICT on developing their creative abilities, as the results confirm that the level of influence was very strong (as per the standard used in the aforementioned measurement), according to the degree of relative strength of this dimension, which amounted to 87%. The overall average of the mean was 95.24, bearing in mind that the maximum degree that can be reached is only 120 degrees (N = 87).

Despite the very strong effect of using ICT on increasing the creative abilities of students, statistical analysis of this dimension shows that this effect is variable among students, as shown in the following **Figure 4**, which shows the extent of the differences in developing their creative abilities.

Figure 4 shows the difference in the level of impact of using ICT on the development of the students' creative abilities. The results show that 39% of the students scored 100

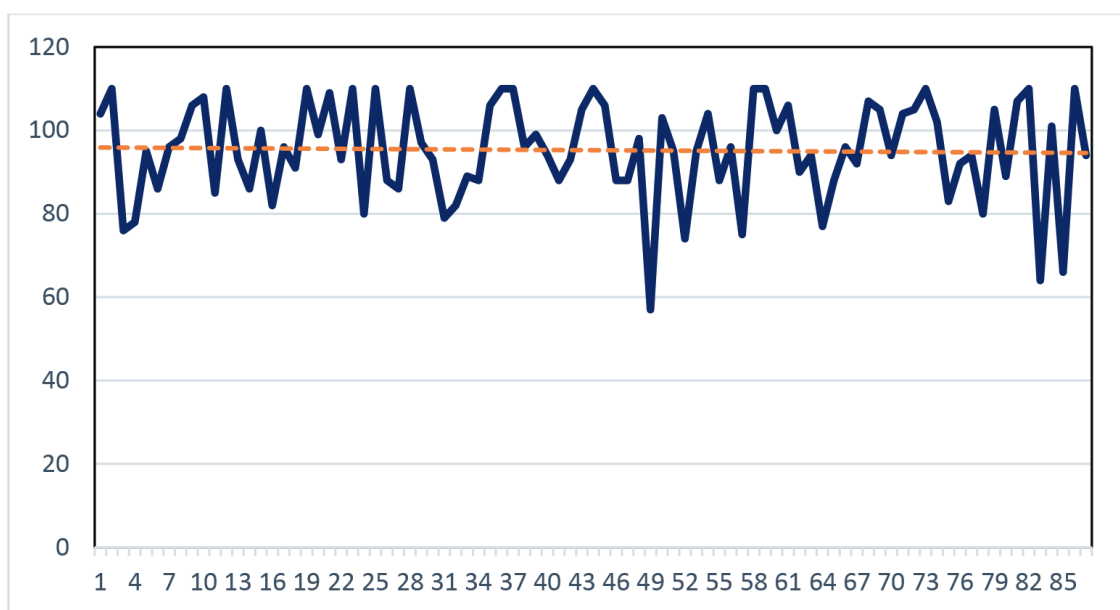


Figure 4. Various levels of impact of ICT use on the development of the students' creative abilities.

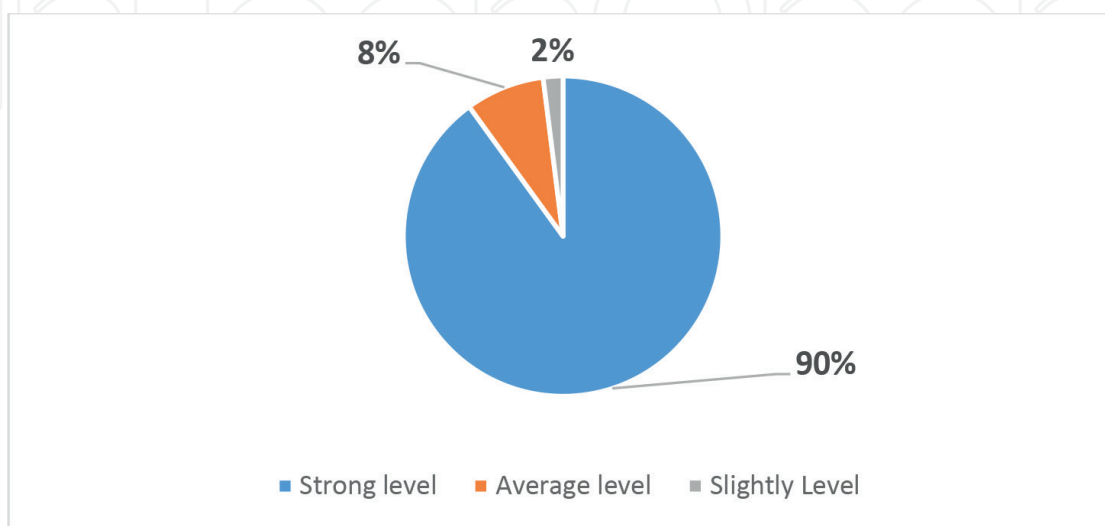


Figure 5. Different levels of impact of ICT use on the development of students' creative abilities.

or more out of a total of 120 degrees, which is the maximum score for this dimension. Further analysis indicated that 90% of the students developed their creative abilities at a very strong level (scores: ≥ 80), while 8% had a medium level of development (scores: $65 \leq 80$), and only 2% had a very limited level of development (scores: < 65). The researchers presented the result of this effect graphically in **Figure 5**.

The final result that can be drawn is that the students' use of ICT had a very strong impact on the development of their creative abilities, taking into account that the extent of influence varies from one student to another according to many variables, including training, motivation, and individual differences among students.

9. General results and conclusion

The current research sought to answer several pivotal questions in order to accurately determine the extent of the impact of the use of ICT on the development of creative abilities among social work students. From the analysis of the field data of the answer to the first question, that is, "What is the level of readiness of social work students to use ICT?", it was inferred that the students show a high level of readiness, as they have high skills in using one of the most essential ICT tools used in the educational process in all academic disciplines—the computer. The results show several reasons that contributed to the students' proficiency in using ICT technologies, including the high average of daily use hours of ICT technologies, which was 3.59 hours per day on average. In addition, the majority of students placed importance on taking academic courses (average = 1.7 Course) aimed at developing their abilities to use ICT.

The analysis of the results also revealed, in terms of the actual use of ICT, that the majority of students used a considerable number of ICT programs and applications. However, a minority of students indicated that they had never used them when completing academic tasks and assignments, so, they were excluded from the analysis in the remaining part of the research (the research sample became 87 not 90). The analysis also showed that a significant percentage of students participated in training courses to develop their ICT-related skills. They have employed these skills in various courses, whether related to specialization or university and college requirements. Thus, the impact of this use is expected to develop their creative abilities in the future.

The results of the study also showed a positive relationship between cooperative education and the development of creative abilities among ICT students; the majority of the students confirmed that cooperation with their colleagues led to the exchange of many experiences and ideas, and thus the development of their abilities and skills in terms of the application and use of ICT when performing the assignments in courses, and access to a greater amount of knowledge and information.

For the answer to the second question related to the aspects and level of development in performance as a result of reliance on the use of ICT, the analysis showed that reliance on the use of ICT led to the development of performance, where the highest level of development was the development of research skills, then thinking skills, and the lowest level was of personal skills.

Concerning the third question related to the nature of the actual practices of using ICT among students of social work, the research tried to identify systems and programs of ICT that students use when performing academic assignments and tasks, where some of them were highly used, while others were moderately or little

used. Examples of the most frequently used programs and applications were Word, PowerPoint, Moodle, and PDF, while the least used applications were Zoom, Excel, SPSS, and Prezi. In order to use these programs and applications, students rely on the use of several ICT devices used in the educational process. Computers, laptops, notebooks, and smartphones are deemed the most frequently used devices by students, while interactive TV and radio were the least used. The researchers explain that the low level of use of these devices may be attributed to several reasons, the most important of which is that ICT technology requires a high-level training and skills to benefit from its technological capabilities, in addition to the fact that the nature of specialization of social work may not require high levels of technological devices.

For the answer to the main question of the research related to determining the impact of the students' use of ICT on developing their creative abilities, the results showed a strong positive effect of using ICT social work students on developing their creative abilities. The final conclusion that can be drawn is that the students' use of ICT when fulfilling the requirements related to the educational process has a very strong impact on the development of their creative abilities, taking into account that the extent of influence varies from one student to another according to many variables, including training, motivation, and individual differences among students.

10. Implications

The results of the current research proved that there is an effective impact of the use of ICT by students on the development of their creative abilities. Hence, the recommendations of the current research are as follows:

- Universities shall show interest in helping students enhance ICT-related skills by involving them in specialized training courses and developing study plans for them to ensure that more technology-related courses are offered.
- The research also recommends that faculty members give adequate opportunities to students to use cooperative education due to its positive impact on the development of their creative skills and abilities.
- The results revealed the need to conduct more research on creativity in higher education institutions in the following areas: management of higher education institutions and the environment of creativity, faculty staff and creative education, and developing students' motivation toward creativity.

IntechOpen

Author details


Emad Saleh^{1,2*} and Magdy Mostafa²

1 Fayoum University, Egypt

2 Sultan Qaboos University, Oman Sultanate

*Address all correspondence to: dremadfarouk14@gmail.com

IntechOpen

© 2023 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Saleh EF. Adolescents and internet: Effect and interaction. *International Journal of Social Science and Technology*. 2018;**3**:21-50. Retrieved from: www.ijstr.com
- [2] Saleh EF. Private practice social work in the Arab world: Sultanate of Oman as a model. In: Wolmesjö M, editor. *Social Work - Perspectives on Leadership and Organization [Working Title]*. London, UK, London, UK: IntechOpen; 2022. Available from: <https://www.intechopen.com/online-first/83148>
- [3] Beaulaurier R, Radisch M. Responding to CSWE guidelines: A literature review and four approaches to computerization. *Journal of Teaching in Social Work*. 2005;**25**(1&2):129-150 Retrieved from <http://beau.fiu.edu/writings/beaulaurier%20radisch%20JTSW%202005.pdf>
- [4] Perron BE, Taylor HO, Glass JE and Margerum LJ. Information and Communication Technologies in Social Work. vol. 11. no. 22010. pp. 67-81. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3117433/>
- [5] Faux TL, Black-Hughes C. A comparison of using the internet versus lectures to teach social work history. *Research on Social Work Practice*. 2000;**10**(4):454-466. Retrieved from: <https://journals.sagepub.com/doi/10.1177/104973150001000406>
- [6] Bailey K-R, Janagan JE. Internet-based technologies in social work education: Experiences. *The Caribbean Teaching Scholar*. 2014;**4**(1):23-37. Retrieved from: <https://journals.sta.uwi.edu/ojs/index.php/cts/article/view/443>
- [7] Abdulmoneam A. Outstanding, Talented, and Creative People: Prospects for Care and Rehabilitation. Alexandria: University Youth Publications; 2006
- [8] Barker R. *The Dictionary of Social Work*. Washington DC: NASW Press; 2014
- [9] Tierney W, Lanford M. Conceptualizing innovation in higher education. In: *Higher Education: Handbook of Theory and Research*. Cham: Springer; 2016. Retrieved from: https://link.springer.com/chapter/10.1007/978-3-319-26829-3_1
- [10] Nissim Y, Weissblueth E, Scott-Webber L, Amar S. The effect of a stimulating learning environment on pre-service teachers' motivation and 21st century skills. *Journal of Education and Learning*. 2016;**5**(3):29-39. DOI: 10.5539/jel.v5n3p29
- [11] Jahnke I, Haertel T, Wildt J. Teachers' conceptions of student creativity in higher education. *Innovations in Education and Teaching International*. 2017;**54**(1):87-95
- [12] Rampersad G, Patel F. Creativity as a desirable graduate attribute: Implications for curriculum design and employability. *Asia-Pacific Journal of Cooperative Education*. 2014;**15**(1):1-11
- [13] Livingston L. Teaching creativity in higher education. *Arts Education Policy Review*. 2010;**111**(2):59-62
- [14] Jackson N, Shaw M. Developing subject perspectives on creativity in higher education. In: *Developing Creativity in Higher Education*. Routledge; 2006. p. 20
- [15] Sheridan-Rabideau M. Creativity repositioned. *Arts Education Policy Review*. 2010;**111**(2):54-58

[16] Pratt MK. ICT (Information and Communications Technology, or Technologies). TechTarget Network. 2019. [Online]. Available from: <https://www.techtarget.com/searchcio/definition/ICT-information-and-communications-technology-or-technologies>. [Accessed: November 25, 2022]

[17] UNESCO. Guide to measuring information and communication technologies (ICT) in education. In: Hendrik VDP, editor. UNESCO: The UNESCO Institute for Statistics UIS, Canada. 2009. Retrieved from: <https://unesdoc.unesco.org/ark:/48223/pf0000186547>

[18] Smith MS, Winthrop R. A New Face of Education: Bringing Technology into the Classroom in the Developing World. Washington, DC: Brookings Institute; 2012. Retrieved from: <https://www.brookings.edu/research/a-new-face-of-education-bringing-technology-into-the-classroom-in-the-developing-world/>

[19] Saleh EF, Al-Rawas AM. The impact of new media on child socialization applied search on basic education schools in Muscat governorate–Sultanate of Oman. *International Journal of Health Sciences*. 2015;3(3):55-72. DOI: 10.15640/ijhs.v3n3a6