TACTICAL AND INFORMATION INTERNET SKILLS OF STUDENTS IN SECONDARY SCHOOL: AN ACHIEVEMENT TEST

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ABSTRACT

This study focuses on the Tactical and Information Internet Skills of Yemenis secondary school students in Malaysia that was carried out in an achievement test. Participating students were requested to complete homework and some tasks on the Internet. The results showed that the levels of both information and tactical (planning) Internet skills reflect much scope for improvement. Some of the variables (essentials) that affect these skills, education level was found to be the most significant and important, while years of Internet experience and the total number of hours spent online per week did not have any influence. Between the most significant skills and specific information related to obstacles experienced by the secondary school students were factors such as determining the appropriate search queries, assessing the information located, keeping focus, or using the proper steps to arrive at the final purpose. In general, the school students' achievements call into question the extent and adequacy levels they possess in relation to tactical skills and information for utilising the Internet for assignments, academic projects or school projects.

Keywords: Information skills; Internet skills; Secondary school students; Tactical Internet skills;

INTRODUCTION

Researchers and students use the Internet for numerous aspects of schoolwork, such as working on their studies or homework, getting information for discussions or projects, and getting in contact with classmates. Internet skills are usually believed to produce great learning results and successful schoolhouse works (Hinostroza, Matamala, Labbé, Claro & Cabello, 2015; Kuhlemeier & Hemker, 2007; Wainer, Vieira & Melguizo, 2015). Unfortunately, not every learner is equally skilful in Internet abilities that are needed for learning and education tasks (Lauman, 2000; Zacharia et al., 2015). Adequate Internet skills are not a major component or element in the present curriculum, although there are attempts ongoing in schools to promote and enhance them. It is commonly perceived that technology, like the Internet, enables learning and offers additional learning and knowledge (McKenney, Kali, Markauskaite & Voogt, 2015). This notion, however, is ambiguous and doubtful; and studies on the subject are oftentimes misrepresented (McKenney et al., 2015). Moreover, it is often believed that younger people are more proficient in utilising the Internet. Van Deursen & van Dijk (2015), nevertheless, acknowledged that this is principally true for so-called button knowledge. Deursen & Van Dijk (2010) investigated Internet skills noting the following:

- Executing skills are acquired from concepts that indicate the presence of fundamental skills in adopting Internet technology (IT).

- Official skills are associated with the hypermedia substructure of the Internet, including those requirements in the skills of exploration, orientation and adjustment.

- Learning skills arise from knowledge and studies that choose a phased approach in describing the actions by which users try to accomplish their knowledge and information requirements.

- Tactical skills indicate the potential for utilising the Internet as a midpoint of accessing certain objectives and for the general aim of enhancing one's position in the community. The focus is on the procedure and how decision-makers can give an optimal answer as efficiently as possible.

An important aspect of these characteristics is key to avoiding a technologically inevitable viewpoint. Skills linked to the usage of the Internet as a channel (operational and formal) and those associated with the content produced by the Internet (information and tactical) have both been considered. By using this simplification of achievement tests, van Deursen & van Dijk (2011) detected that the scale of operational and formal Internet skills mostly seem to be too high. The tactical skill levels of Internet and information, however, leaves a vast field for enhancements. Van Deursen & van Dijk (2011) pointed out a decrease in the level of formal Internet skills and the medium-related operational aspect in spite of the rising age; thus, although young people completed well in medium-related Internet skills, they showed a noticeable decrease in levels regarding skills of strategic Internet and information. Decidedly, it was assumed that age factor has a positive effect in terms of content related to skills, meaning that older people preferred an achievement in these skills than the youth (van Deursen & van Dijk, 2015). It is necessary to be conscious that the content related to skills in one way or the other consists of medium-related skills due to the loss of these skills pointing that one will not take in the chance or scope to carry out these skills. Unfortunately, it was shown that seniors have larger difficulties with formal Internet skills and operational procedures, which strongly impacts their achievement on Internet skills and information.

LITERATURE REVIEW

Van Deursen & van Dijk (2015) conducted the achievement tests using only people who were over the age of 18. Furthermore, the level of Internet and information skills appeared, generally, to be very low. The researchers have been striving to assess the level among secondary school students under 18 years old. In secondary schools, many learners seem to presume that students know how to use a PC or smart devices and applications (Heerwegh, De Wit & Verhoeven, 2016). As a result of this, little interest in those skills is shown in classes. If teachers are to design their guidance and instruction to meet the needs of all learners, they need to equip themselves with the Internet students' skill demands (Heerwegh et al., 2016; Van Deursen & van Dijk, 2015). For investigating the levels of Internet skills, a diversity of methodologies can be adopted. A majority of the existing research on Internet skills employed surveys that could give in-depth discoveries of participants' skills. However, in most situations, data was collected according to someone's own beliefs, tactical Internet skills or evaluations of their computer (Hinostroza et al., 2015). Thus, self-report questionnaires have benefits like the capability to present a big number of questions on a large range of tactical skills in rate effectiveness, less time, fast processing, and simple scoring (Kuhlemeier & Hemker, 2007). This method has important obstacles of validity

(Deursen & van Dijk, 2010; Hietajärvi, Tuominen-Soini, Hakkarainen, Salmela-Aro & Lonka, 2015; McCourt Larres, Ballantine & Whittington, 2003).

There are studies that show that women have a more realistic view of their own digital skills than men (Heemskerk, Volman, Admiraal & ten Dam, 2012). Accordingly, it is not yet clear to any extent if the differences in self-ratings show a match to actual differences in tactical Internet skills. In addition to using surveys, interactive standardised procedures can be used to examine the levels of tactical Internet skills. An example to this approach is the Educational Testing service ISkills evaluation, designed to check IT literacy (Katz, 2007). The ISkills evaluation is achieved over the Internet in an insured testing environment. The evaluation offers scenario-based achievement tasks in which students answer information problems by utilising simulated software such as web presentation software, browsers or emails.

Selection and evaluation instruments include the consideration of diverse factors, implementation, feasibility, reporting configuration, covering approach, cost, scope, and also the consideration of social context and output needs (Lau & Yuen, 2014). Approximately all valid measurements of tactical Internet skills, however, exceed the simulated software and surveys. A measurement of tactical Internet skills should give the potential for actual real-life use of the Internet. Observational research would be very suitable to supply a realistic view of the learners' tactical Internet skills. Hence, cost is a strong restriction for large-scale data collecting. Although based studies viewing frustration interruption of participants leads to making it difficult to get contextual information (Van Deursen & Van Diepen, 2013) and examining the real skills for Internet users in a behavioural study are very labour-intensive operations, they appear to be the most suitable ways of getting a direct measurement of skill. A diversity of process indexes may be automatically registered, such as successful completion and user actions. To obtain a realistic view of users' Internet skills, an observational study is shown in which topics are chosen to complete homework via the Internet.

Research questions

1. What are the information levels and tactical Internet skills among secondary school students? Since school students are sometimes heterogeneous, the Internet skill level is likely to differ between categories of students.

2. What factors determine the tactical levels of Internet skills of secondary school students? In addition to detecting general tactical skill levels and how they vary among secondary school students, this study is also concerned with exposing the individual skill-related difficulties they experience.

3. What specific tactical Internet skill-related barriers and difficulties do users face online?

THEORETICAL BACKGROUND

Deursen & van Dijk (2010) suggested a definition for the public user population to work well in a frequently digital society. For tactical skills (based on patterns of decision-making) information of Internet skills (based on patterns of information processing), the following specific indicators have been suggested:

Skills of Internet Information: selecting required information over the following operations:

- Selecting a search system or website in order to obtain information.
- Defining queries or search options.
- Choosing information (on search results or websites).
- Assessing sources of information.

Skills of Tactical Internet: Considering the usefulness of the Internet in the following operations:

- Improving an orientation toward a specific aim.
- Choosing the correct behaviour to access this aim.
- Creating the correct decision to reach this aim.
- Acquiring the advantages resulting from this aim.

Previous related studies show that scholars and students might lack many of these special skill points (Georgas, 2015; Kuiper, Volman & Terwel, 2005; O'Hanlon, 2002). Depaepe, De Corte & Verschaffel (2015), on the other hand, detected that young people have problems in terms of evaluating information found online, specifying search queries, formulating information problems, and judging search results (Hammond, Budzik & Birnbaum, 2015). Moreover, in showing the information level and tactical Internet skills among school students, there is interest in the items that locate the levels for these skills. These items will now be discussed, and hypotheses will be formulated. Kuhlemeier & Hemker (2007); Van Deursen & van Dijk (2015) all handled actual achievement tests which revealed no variances between males and females. Many researchers that stated variances used self-evaluation showed that females tended to evaluate their tactical Internet skills worse than men (Deursen & van Dijk, 2010). Nevertheless, Kroustallaki, Kokkinaki, Sideridis & Simos (2015) showed that males and females around the age of 12 do vary in the method and manner in which they seek for information. For example, males tend to use one keyword in comparison to females. Moreover, boys frequently prefer to click links and stay on the same web page for shorter time periods than females. This contrast, however, did not occur in big differences in the real outcomes. This leads to the following hypotheses:

H1. There are no gender differences in tactical Internet and information skills of students when considering age.

H2. There is no possession of better tactical Internet and information skills of secondary school students with increasing age.

H3. There is no possession of better tactical Internet and information skills of students with increasing educational levels.

H4. There is no influence on the level of tactical Internet and information skills of students in regards to Internet experience.

H5. There is no effect on the level of tactical Internet and information skills of secondary school students in regards to the number of hours spent online weekly.

METHOD

To achieve a valid measurement of school students' tactical and information Internet skills, an observational study was carried out in which topics were chosen to finish homework and tasks on a website.

Sample selection

The target in this study consists of school students who contrast in levels of educational achievement and age. Therefore, nine classes in an English secondary school were invited to join in the achievement tests, which were equally separated over three educational levels and three age groups (12–14, 15–16, and 17–18). The school was selected for its well-equipped computer laboratory. In each class, 5 males and 5 females were nominated randomly from the class list of students. The nominated males and females were asked to share and participate in the achievement test. Of the 60 students, 54 agreed to contribute. Table 1 contains the features of the applicants. The average of Internet experience years was 5.9 (SD ¼ 1.97) and average hours of Internet usage was 1.8 (SD ¼ 1.09) in a day. The average days of Internet usage per week were 5.6.

Procedure and data collection

This study was piloted in November 2015 in the school's centre at Yemenis secondary school, Malaysia. This methodology was controlled in terms of hardware, software and Internet connectivity quality. It was also confirmed that the setting was equally dissimilar and new for all members. During their homework, the students each utilised a mouse, a 17-inch screen and a keyboard. All these devices were connected to a PC from which the exam leader could view the students' arrangements and actions.

Table 1: Demographic data for the sample of students

Demographics	N	%
Gender		
Male	28	51.9
Female	26	48.1
Education		
Low	18	33.3
Medium	18	33.3
High	18	33.3
Age in yrs.		
12, 13, 14	19	35.2
15, 16	18	35.3
17, 18	17	31.5

The PC was programmed with three of the same Internet browsers (Mozilla Firefox, Google Chrome and Microsoft Internet Explorer) that they could use at school, which permitted the students to duplicate their regular Internet usage. Furthermore, no default page was set on the browsers, and all the homework began with a blank page. To ensure that the students were not affected by a prior user's actions, after each session the browser was reset by deleting temporary or passing files, favourites and cookies. Moreover, history, form contents, downloaded files, and passwords were deleted, and the PC was restarted. The Camtasia Recorder application was obtained to record the monitor actions of the tasks of those that finished the work. At the centre, the topics were given as oral instructions regarding

the procedure and method of the study. Before the exam, a 10-minute questionnaire was distributed to collect personal information. If the students completed the questionnaire, they were given four pieces of homework sequentially. The topics themselves were selected when the students had finalised or wanted to give up on a piece of homework in sequence. After the students had taken a certain amount of time (fixed from the pilot tests), the test leader kindly asked them to move on to the next homework. If the correct answer was not found, the task was noted as not performed. The exam administrator directly estimated the time spent and the levels of completion on the tasks. The assignment completion rate was found to be the most significant result. However, because of the factor of some users being slow in finding the right answer, while other users could get the correct answer almost instantaneously, the time spent on the homework was also deemed as a measure of their level of success.

Tasks (homework)

Two pieces of homework were used for assessing skills of information, and another two were used for examining tactical skills in relation to the Internet. Hence, the tactical skill homework can be seen as more complicated than the two pieces of homework for information skills. The results for both kinds were primarily checked based on the number of tasks answered successfully. Nevertheless, the researcher also examined the time needed for each piece of homework. Open-ended tasks were avoided due to the difficulty that the potential of different responses for the same task would present for personnel to interpret. Thus, the tasks demanded just one correct answer, while unachieved and partially completed tasks were considered as unsuccessful. Before the achievement, exams were conducted among students, five topics were selected for participation in a pilot test in which the homework was tested for inclusiveness and application possibility. The nature of the homework was as follows:

Skills of Internet Information Regarding (Homework 1) & (Homework 2)

Find out required (essential) information, via selecting a website or searching a system to get information, determining queries or search options, choosing information through a website, and assessing the information found by depending on:

- The total number of words used in the search process.
- Making the right decision.

Tactical Internet Skills Regarding (Homework 3) & (Homework 4)

Take interest from the Internet via improving and promoting an orientation to approach a particular critical aim, adoption of the right procedure to reach this aim, making the appropriate decision to reach this aim, and gaining the advantages emerging from this aim by depending on the time spent (the maximum period is 30 minutes).

Analyses

The method for determining the rate of each particular factor and the two Internet skills included a total grade corresponding to all the items. The following section shows percentages of all homework completed, as well as percentages of fulfilment for each skill. Additionally, the average percentage grades of the homework in both information and tactical Internet skills achievement were calculated to maintain the scale metric and for convenient explanation. Meanwhile, both homework skills had the same weight, and the total scores were suitable. Linear regression analyses were used that recognised which of these items seemed to be significant to the number of homework accomplished and the period spent. The dependent

variable was continuous and the independent variables continuous or discrete; the observations were independent of each other. The prediction errors were roughly, generally distributed, with the variance of the dependent variable roughly constant with diverse values of the independent variables, and the relationship between the variables was linear. Regression analyses showed age to be a constant variable, but gender as a dichotomous variable.

Information on education was composed of grades and was later divided into three groups of higher, medium and lower educational accomplishment. The experience of Internet was measured by the total number of years that school students have been utilising the Internet. Moreover, the total amount of Internet utilised was examined in relation to the hours spent browsing the Internet each week. All data were checked carefully for absent answers by the test manager. In regards to information skills, this evidence involved the search operation used; the indices that included the items of search queries, the search system used and the procedure of Booleans to border search outcomes, as well as the number of search behaviours, and the estimation of information initiated. For tactical skills, the signs included considering all each job's demands, the utilisation of decision-assisting websites, and building decisions initiated on all demands of information. All these points were accurately checked with the investigation of the audio-visual recordings.

RESULTS

Internet skill levels

In general, a mid-range of 2.6 (64%) of the four pieces of homework regarding Internet skills was accomplished successfully. Table 2 shows that 23% of the participants completed all four pieces of homework effectively and successfully, whereas 7% were not capable of completing any homework.

Table 2: Correctly accomplished homework tasks (N=54)

Number of Homework tasks completed correctly		
	N	%
0	04	7.4
1	07	12.9
2	13	24.1
3	17	31.5
4	13	24.1

Table 3: Completion rate of homework tasks and time spent

Number of Homework tasks completed correctly			Time spent (Mins)		
	N	%	*M(SD)*	*Min*	*Max*
Homework Task 1	38	70.4	1.22	0.09	5.80
Homework Task 2	42	77.8	2.27	0.29	10.10
Homework Task 3	33	61.1	3.60	0.50	12.09
Homework Task 4	29	53.7	7.71	1.70	15.12

Table 3 shows that 70% of the participants completed the first task successfully, and 77% did the second homework. However, the achievements on the two tactical-based pieces of homework were not as good: only 61% accomplished Homework 3, and 53% of the participants accomplished Homework 4 correctly. While trying to finish the tactical skills

homework, 11 participants gave up on Homework 3, while 8 gave up on Homework 4. Generally, in regards to the information skills homework, 73% had finished correctly, and 57% of the two tactical skill pieces of homework were finished correctly. Table 2 and Table 3 further reveals that the time used up for each homework varied substantially with more things shown.

Implications of number of keywords used in information and tactical skills usage

Tables 4 and 5 provide insights into the distribution of the number of keywords used by the students across the two information homework tasks and the two tactical homework tasks. They show a variation in usage between information tasks one and two, particularly with regards to the use of two, three and four words. This contrasts with the two tactical tasks (3 and 4) where the use of one word was most prevalent for both tasks and the use of two words was more frequent for Task 4. In addition, in Task 4 there was an instance of a student visiting the website without searching on keywords.

Table 4: Total number of keywords used in Information Homework Tasks 1 and 2

Number of Keywords	Homework Task 1		Homework Task 2	
	N	%	N	%
1	8	14.8	5	9.3
2	30	55.6	6	11.1
3	9	16.7	26	48.1
4	4	7.4	13	24.1
5	5	9.3	6	11.1
6	2	3.7	2	3.7
7	0	0	1	1.9

Table 5: Total number of keywords used in Tactical Homework Tasks 3 and 4

Number of Keywords	Homework Task 3		Homework Task 4	
	N	%	N	%
0*	1	1.9	0	0
1	46	85.2	35	64.8
2	5	9.3	15	27.8
3	2	3.7	3	5.6
4	0	0	3	5.6
5	1	1.9	3	5.6

*Just visited website without using any keywords.

Specific factors of information and tactical internet skills

To recognise factors that affect the level of both information and tactical Internet skills, linear regressions were employed: one with the number of homework tasks finished correctly and the other with the time used as a dependent variable.

Table 6: Regression on time spent and the number of Information Homework Tasks accomplished correctly

	Time spent β	Homework tasks accomplished correctly β
Gender	-.01	.16
Education	-.31*	-.11
Age	-.16	.35*
Internet experience	-.24	.06
Hours on line	.05	.09
F	1.99	1.87
R^2	.17	.17

*<0.05; N=54

Table 6 shows the outcomes for the skills of Internet information. Consistent with Table 6, learning is the main provider to the number of correctly accomplished information skill homework. The higher the level of teaching that a topic had acquired, the better the average of correct answers obtained. Moreover, age was significant over the time used on the information homework. Other clarifying variables did not emerge to be significant in the completion of the homework or the time spent on it.

Table 7: Regression on time spent and the number of Tactical Homework Tasks accomplished correctly

	Time spent β	Homework tasks accomplished correctly β
Gender	.11	.02
Education	-.20	-.37*
Age	-.20	-.06
Internet experience	-.10	-.06
Hours on line	-.03	.11
F	1.15	1.41
R^2	.12	.14

*<0.05; N=54

Table 7 shows the outcomes for tactical skills of the Internet. From the two tactical skills of the Internet, learning is once again the major contributor to the quantity of homework correctly accomplished. The higher the level of learning that a topic had acquired, the higher was the middle finishing point rate. Hence, for all other descriptive variables, none was found to be as significant. The posed hypotheses are explained in Table 6 and Table 7. Hypothesis One (H1) shows no gender differences in information and tactical Internet skills, as males and females do not appear to be at variance with regards to their tactics and information. Hypothesis Two (H2) shows that with older ages, that these students will hold the best tactical and information skills of the Internet, is merely slightly supported. Age alone was significant in the time used on information. Hypothesis Three (H3) was also supported, which declares that with an increased learning level, students will have the best tactical and informational strategies regarding Internet skills. Learning was significant regarding the number of correctly accomplished information and tactical homework tasks. Hence, the Hypotheses H1, H2 and H3 are supported. Lastly, Hypothesis Four (H4) and Hypothesis Five (H5) are not supported since data on Internet utilisation and experience did not show an influence on students' Internet skill levels, tactical and information-wiseness.

DISCUSSION AND MAJOR RESULTS

In terms of research question one, the levels of tactical and information Internet skills, amongst these secondary school students leaves much room for enhancement. This is particularly so when taking into account the practical perspective used for the homework and the reality that in actual Internet utilisation, remote artificial exam status and achievements, students' performance will probably be poorer. On average, only 64% of all homework was finished correctly. This outcome, therefore, encourages further research to be conducted with such students. Siddiq, Scherer and Tondeur (2016), for instance, showed that learners have a tendency to use the Internet at a moderately immature age but are poor in significant website understanding skills and reflections concerning search outcomes. On research question two, it is concluded that being able to fulfil such educational tasks is a major and essential contributor to achieving the level of tactical and information Internet skills required for learning. The higher the level of a learner's education, the more superior the achievements. Tactical and information skills greatly relate to intellectual and educational capacities.

It is frequently argued that a community gains knowledge of Internet skills in supplementary application or practice through trial and error rather than in official educational contexts (See Blankson & Blair, 2016; De Haan & Huysmans, 2002). But based on these outcomes, it is possible to conclude that this is not applicable to acquiring tactical and information skills. Only age had some effect, and gender did not expose any significant differences. Adult students required a lesser amount of time to accomplish the homework regarding skills of information on the Internet. An important conclusion is that the level of tactical and information Internet skills among these secondary school students had a limited relation with Internet activities and actions, as well the quantity of weekly time used online. Issa, Isaias and Kommers (2016) indicated that these factors merely affect the level of professional and operational skills. The survey in their research shows that self-efficacy of the Internet is a dependent variable, frequently identifying previous Internet experiences to be a powerful predictor. In regards to research question three, the most significant explicit information and skill-linked obstacles that the secondary school students experienced was the focus. Students' identification of research questions exposed large differences among the topics. For approximately half of the topics addressed the searches were conducted by adopting queries which were general for the homework. On the other hand, it was found that none of the tasks considered the source of the information established, thereby resulting in the response as the primary aim.

Pertaining to tactical skills of the Internet, keeping a high focus on the final target was difficult in relation to some search topics. Of greater concern, nevertheless, was the lack of competence in completing the tactical rounds to achieve the final purpose. Moreover, in only a slight number of situations was the cause identified for the tactical information, which was found to often lead to choosing the wrong decision. Overall, the achievements of the secondary school students led to querying whether they had enough knowledge of the tactical skills and information needed for Internet assignments for school projects. Therefore, from the results of achievement tests, it appears that tactical and information Internet skills should be involved as standard elements of the curricula. Regrettably, for Internet skills in general, the acquisition of tactical skills and information skills in particular, play a negligible part in the school's lessons up until now. This applies to several other places around the world as well. Thus, it is important for educators to acquire appropriate training in tactical and information skills relevant to the Internet and pedagogical approaches for teaching their students. In addition, the research encourages the integration of innovative educational ideas with Internet applications to be applied in existing studies in the curriculum of the school. If improvements in the teaching of information and tactical skills are executed in existing

classes such as language, history, biology and geography, it is possible that students' skills will be better. Moreover, educators would be more encouraged to contribute extra effort and time.

LIMITATIONS AND FUTURE WORK

As outlined in the literature review although it is possible to observe skills that are required for Internet usage, investigations into these skills are usually compartmentalised in their description and utilise small sample sizes. Surveys are typically designed for data collection in which skills are examined either through self-evaluation or indirectly. The achievement tests administered to examine the tactical Internet and information skills in this research, while derived important results, also had some limitations, primarily, because only 54 students participated. For this reason, it is not reasonable to generalise these outcomes to all of the participating secondary school's students. However, in assessing the total representativeness regarding sampling strategy, when compared with the criteria for an experiment, this number of students would be sufficient to be considered a small case study. The second limitation might include the topics of the homework. Despite the fact that we attempted to improve the practical informational requirements, we did not identify or know if the topics might have, for instance, influenced the students' motivation to accomplish the homework. Furthermore, the desire to achieve might be higher in the context of this research by being perceived as more important in a laboratory environment.

The third limitation is that there is a probable variance between information Internet skills and tactical Internet skills. Hong et al. (2016) tried to identify the theoretical origins of both concepts independently. The skills of Internet information came from ideas related to information searching, whereas tactical skills came from decision-selecting operations. Nevertheless, tactical Internet skills need a wider level than information skills; while information Internet skills are a basic necessity for executing good imperative skills of the Internet. This makes it difficult to assess both viewpoints individually. In the tactical skills' tasks, topics with fewer skill levels of information did not even drive students to obtain a decision based on the information handled or settled. Clearly, this was owing to the fact that they did not locate any information. Concerning future research and investigations, additional homework might be applied in which the materials and information are given to students, with just the decision creating part comprising the task demand. Fourthly, we were unable to identify whether the absence of tactical and information skills in the students, can be detected equally in information recapture by utilising more traditional channels and media.

Therefore, further studies should address this query by adding analogous information and tactical skills achievement examinations that involve media other than the Internet. An outcome comparison of all such examinations would indicate whether the adoption of the Internet mode causes a distinction or merely a difference. Moreover, this comparison probably may also explain whether Internet utility services are the best means of retrieval of good information and reliable exam returns or if it represents an extra limitation for secondary school students who are poor in the skills needed for the suitable application of online websites or new technology.

In this research, the focus was on measuring tactical skills and information of the Internet. However, other skills, like the communication skills across the Internet or content organisation were neglected. The researchers argue that tactical Internet and information skills are essential for these participations and activities, and require excellent levels of using Internet skills, especially for learning and academic purposes as opposed to a social use.

Therefore, these findings provide vital information to help design future investigations that can add to the knowledge of the way these skills impact on learners in the current context of high internet usage both in an out of school. Lastly, future work should concentrate on how differences in Internet skills among secondary school students can be decreased and how the teaching and learning of both information and tactical skills might best be achieved.

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