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Developing Self-regulated Learning Skills in University Students Studying in the Open and Distance Learning Environment Using the KWL Method

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Abstract: Open and Distance Learning (ODL) is considered an important strategy for increasing educational access. However, students learning in ODL environments face many challenges. Studies have indicated that students with self-regulated learning (SRL) skills are more likely to succeed in ODL environments. Studies have demonstrated that through instructional strategies, tutors can teach and help improve SRL skills. This development of SRL skills may lead to reduced drop-out rates. To examine the suitability of SRL skills development strategies, the researcher of this study utilised a KWL (What I Know, What I Want to Know, What I Learned) method in the ODL environment in Sri Lanka to help develop SRL skills in university students. This study adopted an action research approach, and twenty-four (24) Bachelor of Education students and three (03) educators at the Open University of Sri Lanka were the participants. Zimmerman & Moylan's (2009) self-regulated cycle of learning model was used for the intervention. A Motivated Strategies for Learning Questionnaire (MSLQ,1991) was administered to measure students' SRL skills. Observations, reflections, and focus group discussions were used to collect qualitative data. The study's findings indicated that the KWL method contributed to the improvement of self-regulated learning skills among student participants.

Keywords: self-regulated learning skills**,** Open and Distance Learning environment, KWL method.

Introduction

Background

Open and Distance Learning (ODL) is considered an important strategy for increasing educational access, improving the quality of education, advocating for peer-to-peer collaboration, and providing learners with a greater sense of responsibility for learning (Calvert, 2006). According to UNESCO (2002), the term open and distance learning reflects both the fact that all or most of the teaching is conducted by someone removed in time and space from the learner, and it includes higher dimensions of openness and flexibility, whether in terms of access, curriculum or other elements of the structure.

However, university students studying in ODL environments can be identified as a special group because they are dispersed and physically separated from the institution, and they do not have the same support systems as institution-based learners. Das (2010) pointed out that inefficient management of time, lack of sustained motivation, not having any encouragement from their home or workplaces and lack of modelling are some other constraints that they face. The absence of an immediate teacher, isolation from peer groups and irregular contacts at the study centre sometimes

become major hindrances in their learning. However, the number of students who learn in ODL environments in the world has grown exponentially over the past few years. Nevertheless, despite such growth, ODL institutions continue to face low student graduation rates because some of the enrolled students do not complete their qualifications within regulated specifications and some drop out of the system (Khumalo, 2018).

To overcome this situation, university students in ODL environments have to be "independent learners" and should be responsible for their studies. This is where the importance of self- regulated learning (SRL) becomes an essential factor. If students study in ODL environments and possess self-regulated learning competencies they can behave as independent learners, which is an essential feature for open and distance learning (Corno, 2001). Further, SRL is not a fixed trait but, rather, a skill that can be developed and honed through experience and practice applying self-regulated learning strategies (Zimmerman, 2015).

Therefore, to help these students to be self-regulated learners, educators in ODL environments should encourage self-regulated learning among their students by using suitable strategies and tools. Considering these reasons, the researcher of this study used the KWL method in the ODL environment in Sri Lanka to develop self-regulated learning (SRL) skills in university students.

Aim and Objectives

The main aim of the study was to examine the suitability of self-regulated skills development strategies that can be adopted in the ODL environment in Sri Lanka to develop SRL skills in university students.

The objectives of the study were,

1. To identify self-regulated learning skills of B.Ed students studying in the open and distance learning environment.
2. To plan and implement an intervention to use the KWL method to develop self-regulated learning skills in B.Ed students studying in the open and distance learning environment.
3. To assess the impact of the intervention on the development of students' self-regulated learning skills.

Review of the Literature

The process of systematically organising one's thoughts, feelings, and actions to attain one's goals is now commonly referred to as self-regulation (Usher & Schunk, 2018). Self-regulation from a Social Cognitive perspective looks at the triadic interaction between the person (e.g., beliefs about success), his or her behavior, and the environment (Zimmerman, 2000). According to this perspective, self-regulation is a combination of self-observation, self-judgment, and self-reaction. The same idea is reflected by Pintrich (2000) who defined self-regulated learning as an active, constructive process, whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features of the environment. Efklides (2011) stated that the key components of self-regulated learning are cognition, metacognition, motivation, affect, and volition. All these definitions revealed that self-

regulated learning (SRL) is a complex process, containing cognitive, motivational, and contextual elements.

Although the research studies on the application of SRL in the context of distance education are limited, Radovan (2011) discovered possible relationships between self-regulated learning dimensions and students' success in a distance-learning programme through a research study which was conducted by using a survey design with 319 students. Findings of the above study emphasised that students who study in distance-learning courses need self-regulated learning strategies to be successful learners. Zhao, Chen & Panda (2013), agreed with the idea, and they also emphasised that fostering self-regulated learning ability should be a key element at all levels of distance education courses. However, Ambreen et al (2016) pointed out that most teachers believe that teaching self-regulated learning strategies in the distance education context is not an easy job. Nevertheless, Pajares (2002) revealed that by using the social cognitive theory as a framework, teachers could work to improve their students' emotional states and to correct their faulty self-beliefs and habits of thinking (personal factors), to improve their academic skills and self-regulatory practices (behaviour), and to alter the school and classroom structures that may work to undermine student success (environmental factors). Therefore, within the present study, the researcher used the social cognitive theory as a framework to implement a KWL method in the ODL environment in Sri Lanka to develop self-regulated learning (SRL) skills among university students.

The KWL method was initially developed by Ogle (1986) as an instructional learning strategy that focuses on the involvement of the students and the teacher to take an active role in reading and learning. According to Riswanto et al (2014), it is a theory-based, multiple strategy framework that develops students' engagement and comprehension of texts. Bryan (1998) stated that it is an active learning strategy. Draper (2002) pointed out that the KWL method supports student-centred learning. According to Hassard (2011), the KWL strategy prepares students to make predictions about what they will be reading. Riswanto et al (2014) pointed out that this framework develops students' interest in new vocabulary by enabling them to brainstorm ideas and form inferences by setting learning goals and activating appropriate background knowledge. It also enables students to set goals by determining what they want to learn and to design their own questions to monitor understanding (Woolley, 2012). When using this strategy during the teaching-learning process students must fill out a table named the KWL table. This table contains three columns indicating three pre-designed questions as follows.

- What do I know? (“K” column)
- What do I want to know? (“W” column)
- What did I learn? (“L” column)

According to Ogle (1987), the first question of the KWL table (“K” column), is an excellent way to activate the prior knowledge of readers and it raises students’ awareness of the target text. Thus, students begin to make connections between their prior knowledge and newly acquired information (Ogle, 1987). In a similar vein, Winne (2001) also revealed that the first question of the KWL table (“K” column) aims at activating the prior knowledge of students and finding out their understanding of the topic to be learned. The second question (“W” column) helps to encourage students to inquire into the topic and to formulate their own targets about what they wish to learn during the lesson. The third

question (“L” column) directs the students to reflect and summarise what they have learned at the end of the lesson. Winne (2001) further pointed out that initiating the use of the KWL table early in the lesson allows teachers to understand the students' prior concepts of the subject and encourages students to initiate their own inquiry of the subject throughout the lesson. Most of the existing literature revealed that this method is mostly used to improve students' reading comprehension.

Hamdan (2014) carried out a study by adopting an experimental research design to examine the effectiveness of the KWL-plus strategy on the performance of grade-ten Jordanian male students in reading comprehension. The word "Plus" indicates the writing skill by mapping the information and summarising the text. The sample of the study was selected from a public school (experimental group) and a private school (control group). The experimental group was taught reading with the KWL-plus strategy, and the control group was taught by other conventional methods. Findings of the research revealed that the KWL-plus strategy was effective in improving the reading comprehension performance and recommended that the strategy should be integrated into the English curriculum of the Jordanian schools.

Riswanto and Lismayanti (2014) also carried out research to see whether the use of the KWL strategy was effective in improving the students' reading comprehension achievement in learning English as a foreign language. Non-equivalent groups and pre-test/post-test design was used in this study, and the sample was 40 eighth-grade students of SMPN 4 Palembang in the academic year of 2011/2012. The experimental group was taught by using the KWL strategy, while the control group was not taught using the KWL strategy. The findings of this research also emphasised that the KWL strategy was effective in improving the students' reading comprehension achievement.

Rusmiati (2017) conducted action research to improve students' reading comprehension by implementing the KWL strategy with 31 students in the eleventh-grade of SMA Mujahidin Pontianak. Findings revealed that by using the KWL strategy, teachers could improve the active participation of students, make the students more excited about learning, and improve students' reading comprehension. Further, Rusmiati (2017) suggested that, in implementing KWL, the teacher should explain the roles of KWL clearly and make it simple, and the teacher should manage the time when applying the KWL Strategy in the class. However, there are very few studies done to investigate other possible uses of the KWL strategy.

One such research was conducted by Mardiana (2016, to investigate the influence of KWL on students' reading comprehension achievement and five aspects of character; (1) Motivating Oneself, (2) Self-awareness, (3) Managing Emotion, (4) Empathy, and (5) Social Skills. Seventy-four grade-seven students were included in the sample. The experimental group was given the treatment using the KWL strategy. Both groups were tested before and after the treatment. The results showed a considerable improvement in the students of the experimental group in their reading comprehension achievement and in the five characters which were tested during the research. These five characters are essential in self-regulation also.

Another significant study was carried out by Zouhor et al (2016), which was aimed at examining the effects of the KWL strategy on primary-school students’ metacognition (knowledge of cognitive processes, regulation of cognitive processes of students) and physics achievement. A pre-test/post-test control group design was used in this study. One hundred and one (101) sixth-grade students (47

males and 54 females) were the sample. The findings of the study revealed that there was a significant improvement in the physics achievement and metacognition of the group of students who had been taught using the KWL strategy. Further, Zouhor et al (2016) suggested that there should be adequate resources and professional development for teachers to implement this strategy successfully.

All this literature revealed that educators could use this KWL strategy to scaffold and foster student's cognition, metacognition and motivation, which are vital components of self-regulation. Therefore, the present study used the KWL method in the ODL environment in Sri Lanka to develop self-regulated learning (SRL) skills in university students.

Zimmerman & Moylan's (2009) self-regulated learning model, which reflects Bandura's (1986) Social Cognitive theory, was used for the implementation of the KWL strategy. It comprises three phases, namely, forethought, performance phase and self-reflection. The forethought phase is the initial phase in which students set the stage for learning. Students implement learning strategies and cognitively compare their performance with their goals to determine progress during the performance phase. Students mentally review their performances and determine whether changes in behaviours or strategies are needed or to seek help from others during the self-reflection phase.

Methods

Research Design

This study adopted an action research approach. Action research is a practical way of looking at one's practice to check whether it is as the researcher feels it should be. If the researcher feels that the practice is satisfactory, the researcher will be able to explain how and why he/she believes this is the case and produce evidence to support the researcher's claims (McNiff & Whitehead, 2000). Dick (2000) summarised the features of action research as a cyclic, participative, reflective, flexible and responsive approach. The features of this study are also compatible with these features. Further, the flexible nature of the action research gives the power to the researcher to interpret and integrate the self-regulated learning strategies and tools in the way that the researcher feels is best. Because of all these reasons, the action research approach was the most suitable design for this study, and this approach ensured its compatibility with the study's social cognitive perspective.

Population and Sample

The population consisted of university students in an ODL environment in Sri Lanka. Twenty-four (24) Bachelor of Education students and three (3) educators at the Open University of Sri Lanka were the participants (a convenience sample). The participants were selected from the Open University because, currently, it is the leading and pioneer institution delivering programmes from the distance mode in Sri Lanka.

The Intervention Process

The intervention process was conducted according to the four stages of the action research cycle, namely, Plan, Act, Observe, and Reflect.

Plan: At the initial stage of planning the population and the sample of the study was decided. After consulting the existing literature, a self-report instrument which was designed and published by Pintrich, Smith, Garcia and McKeachie, in 1991, namely, the Motivated Strategies for Learning Questionnaire (MSLQ), was selected to assess student participants' self-regulated learning skills. It

was translated into the Sinhala language because all the student participants of the study use the Sinhala language as their mother tongue. After that, different models that exist in the literature were consulted to select a suitable model for the intervention. Based on the findings, Zimmerman & Moylan's (2009) self-regulated cycle of learning model was selected for use as the framework during the intervention to integrate KWL strategy into the teaching-learning process, because it reflects Bandura's (1986) Social Cognitive theory, where this research study also fits in. It views self- regulated learning as an open-ended process. This model consists of three phases, namely, the Forethought Phase, Performance Phase and the Self-reflection Phase. The way to implement the KWL method within these three phases was to collaboratively plan with three (3) educators who were the participants of this study.

Act: The MSLQ (1991) was administered to student participants before the intervention to gain an understanding of the existing level of self-regulated learning skills of these participants. The KWL method was implemented within the day schools of three compulsory courses of the Bachelor of Education degree programme (Educational Psychology, Comparative Education and Inclusive Education) because of the researcher and the three educators being involved in the teaching-learning process of these three courses.

Implementation of the intervention was done across the three phases of the Zimmerman & Moylan (2009) self-regulated cycle of learning model for a six-month period. According to the existing literature, SRL behaviours are context-specific. Therefore, a detailed procedure was followed during the implementation of the KWL method with specific activities involving forethought, performance and self-reflection..

Observe: The researcher observed the whole process of implementation and how the students practised the introduced strategy with its tools, their interactions, their constraints relating to the process, individual student work and the learning environment as a whole.

Reflect: By analysing all the data gathered through different sources and instruments, the researcher reflected on the process continuously. It helped to assess the impact of the intervention.

Instruments and Data Collection

Motivated Strategies for the Learning Questionnaire (MSLQ)

The Motivated Strategies for Learning Questionnaire (MSLQ, 1991) was used to assess student participants' self-regulated learning skills. It is both a motivational and strategy-oriented self-report instrument, which has been applied and validated at different educational levels, both in university and non-university contexts. Before it was used for student participants, the researcher translated it into the Sinhala language by following the guidelines stated by the World Health Organization (WHO, 2014), which included four steps, Forward translation, Expert panel Back-translation, Pre-testing and cognitive interviewing and the final version. Further, the internal consistency reliability of the translated MSLQ was tested through a Cronbach alpha test and for all subscales of the MSLQ, Cronbach alpha coefficient was .7 or above .7. This meant that the internal consistency reliability of these subscales is in an acceptable condition (Kline, 2000; George & Mallery, 2003). The final version of the translated MSLQ was administered for student participants before and after each intervention carried out through the Inclusive Education, Comparative Education and Educational Psychology courses. This step aimed to measure self-regulated learning skills of student participants to obtain an

overall idea about the effectiveness and suitability of the strategies and tools that were used to develop self- regulated learning skills during the intervention.

Observation

The researcher acted as a participant observer and did unstructured observation with the objective of trying to collect in-depth information to understand the self-regulatory practices of student participants, different types of interactions, components of the learning environment, motives, challenges and other in-depth information about the intervention. According to Chadwick; Bahr & Albrecht (1984), for the social scientist, observation is essential, and it provides accurate descriptions of situations.

Reflections

The process of reflection helps to bring the unconscious into consciousness and, thus, open for inspection (Orange, 2016). Further, it provides insight about experiences, opinions, thoughts, and the feelings of participants in research. Therefore, the researcher collected in-depth information about the intervention by using reflections. After introducing and practising the KWL strategy, the researcher reflected on each action that was taken by the researcher and about the whole process of the intervention. Further, student participants were also oriented to do a self-reflection about the process and the impact of it.

Focus group discussions

After implementing the KWL method, the three educators and the researcher had a focus group discussion to review the suitability of the strategy used to develop self-regulated learning skills in student participants. Another aim of the focus group discussion was to identify the challenges faced by three educators during the implementation of the KWL strategy.

Data collected through different methods were triangulated to strengthen the validity of the evaluation of data and findings of the study and to provide a comprehensive understanding about the way to use the KWL method to develop self-regulated learning skills in student participants.

Data Analysis

Qualitative data were analysed by using content analysis. During the content analysis process, the researcher first coded and then grouped the data gathered from different methods and instruments (observation, reflections, focus group discussions) into some main categories. These categories were formed to achieve the objectives of the study. The researcher formed five main categories namely: Impact of strategies used (category 1), the impact of tools used (category 2), challenges (category 3), methods to overcome them (category 4) and overall impact of the intervention (category 5). To ensure confidentiality, all the participants were coded with a number.

Quantitative data gathered from the self-report instrument (MSLQ) were analysed by using the Statistical Package for the Social Sciences (SPSS for Windows, version 16.0) to gain an understanding about the levels of self-regulated learning skills of student participants as a whole (as a class).

Findings and Discussion

Self-regulated Learning Skills of B.Ed Students Studying in the Open and Distance Learning Environment

There was a noteworthy improvement in the self- regulated learning skills of the student participants after implementing the KWL method within the day schools of the Inclusive Education, Educational Psychology and Comparative Education courses (see Table 1).

Table 1: Self-regulated Learning Skills of B.Ed Students Before and After Interventions

Self- regulated skills	Average class mean value (Before and after the intervention)					
	Inclusive Education		Comparative Education		Educational Psychology	
	Before	After	Before	After	Before	After
Intrinsic goals orientation	4.93	5.95	5.15	6.36	5.29	5.26
Extrinsic goal orientation	5.54	6.25	5.5	6.33	5.51	5.77
Task value	5.54	6.24	5.45	6.31	6.08	5.98
Control of learning beliefs	5.57	6.31	5.53	6.45	6.04	6.04
Self-efficacy	5.44	6.18	5.41	6.29	5.02	5.69
Test Anxiety	4.42	3.14	4.29	3.06	3.9	4.56
Rehearsal	4.74	5.91	4.98	6.13	4.81	5.04
Elaboration	5.08	5.88	5.22	6.06	5.41	5.4
Organisation	4.82	5.75	5.07	6.32	5.01	5.19
Critical thinking	4.91	5.78	5.11	5.99	5.27	5.04
Metacognitive self-regulation	4.89	5.67	5.02	6.03	5.2	5.39
Manage and regulate the time and study environment	4.82	5.71	4.99	6.32	4.59	5.05
Effort regulation	4.63	5.83	4.97	6.14	5.08	4.8
Peer learning	4.3	5.42	4.55	6.36	4.31	4.43
Help seeking	4.91	5.84	5.08	6.45	5.18	5.23

The results in Table 1 reflect that the KWL method and tools that were used during the intervention were effective and suitable to be used in developing the self-regulated learning skills of students studying in the open and distance learning environment.

Findings Based on the Researcher's Observations about the Forethought Phase

To fill the '"K" column of the KWL table, student participants brainstormed their prior knowledge about the given topic. Winne (2001) also revealed that by answering the first question in the KWL table (What do I know (K)?) at least two types of knowledge and experiences stored in their long-term

memory would be more or less activated: (a) some prior domain knowledge of the task; and (b) strategies used with similar tasks in the past. According to Szabo (2006), the "K" column allows the individual to build up self-motivation regarding the topic.

The "W" column directed student participants to think about what they want to know about the topic of the lesson that is going to be learned in the day school. It directed the student participants to set learning goals for themselves individually for the lesson based on their understanding of the topic. Sha et al (2012) stated that the second KWL question helps students to externalise their learning goals based on the products of cognitive operations that are done within the period in which they answered the first KWL question.

Findings Based on the Researcher's Observation about the Performance Phase

Collaborative learning occurred among student participants. (The group work was not well structured, and the educator did not assign different tasks particular to each group member. Therefore, positive interdependence and individual accountability were not observed at a sufficient level, such as in cooperative learning. Therefore, it was more suitable to state that the student participants engaged in collaborative learning in this learning activity.

Further, student participants engaged in active reading. They scanned information, highlighted the important points and underlined the keywords (organisational strategies), summarising the main ideas and made short notes in the margin and discussed some important points with others while reading the learning material and the module (elaborative strategies). According to Garcia (1995), these cognitive strategies such as organisational strategies (selecting the main idea from the text, outlining the text or material to be learned, specific techniques for selecting and organising the ideas in the material) and the elaboration (summarising the material to be learned, generative note-taking, explaining the ideas in the material to be learned to someone else, and question-asking and answering) are useful for integrating and connecting new information with previous knowledge.

In the performance phase, face-to-face interactions between group members and group processing occurred. Interactions with peers in preparing a presentation as a group (social interactions) and assigning different members to find the information by reading the module and given reading materials individually helped to motivate the student participants and to maintain their attention throughout the learning task with more effort (effort regulation). Palmer (2007) also stated that when students have positive social interactions with their peers or teacher, they will become more engaged in learning. Pintrich (2002) pointed out that effort regulation transforms motivation to engagement.

Further, student participants were directed to practise time management skills by allocating a particular period in which to complete the given task. Sometimes student participants used help-seeking skills to clarify the content of the module and the given reading material.

At the end of the performance phase, peers provided their feedback on the findings of other groups. To provide feedback, peers had to think critically about the facts presented by other groups. Positive feedback that was given by the educator and their peers helped to improve student participants' self-efficacy. Schunk (1994) revealed that positive feedback had a more substantial positive effect on students' self-efficacy.

Findings Based on the Researcher's Observations about the Self-reflection Phase

Student participants reflected and summarised what they had learnt at the end of the lesson. This activity directed the student participants to self-evaluate how well they had learnt and to make self-judgments about whether they had reached their learning goals. According to Susan (2006), the "L" column in the KWL table helps students to self-monitor their learning, to self-evaluate what they understood and it provides an opportunity to expand on their ideas and to formulate new ones. Riswanto and Lismayanti (2014) pointed out that it pushed the students to conduct further reading when they left some questions unanswered. Butler & Winne (1995) revealed that it functions as internal feedback about the amount and rate of progress towards goals. They further state that this internal feedback is regarded as an inherent mechanism for all self-regulated activities. At the end of the day school, all student participants reflected on the KWL method as follows.

Findings Based on Student Participants' Reflections about the KWL Method

- The "KWL" method directed student participants to set their goals, improve their curiosity towards the learning and motivated them to engage in self- learning. The following reflections revealed this.

  "I am willing to find new information that is not given in the leaflet about the topic, and this activity directed me to self- learning". (Student participant no.1)

  "This activity motivated me to find out the facts that I unknown to me about the topic that was discussed today". (Student participant no. 5)

  "After this activity, I thought that I should find more information about today's topic". (Student participant no. 7)

- This learning activity helped each student participant to engage in classroom discussions, and KWL gives the students some space to explore the information and build up their knowledge. According to the following reflections, the KWL method helped student participants to collect the new information and to store them in their memory.

  "I learnt many facts about methods that are used to assess special needs students, and from the presentations of other groups, I was able to cover the facts that I missed". (Student participant no. 4)

  "During this activity, I got a proper understanding of the lesson, and because of discussions with other members, I was able to remember many facts". (Student participant no. 19)

- Reflections revealed that the KWL method provided an opportunity for students to self-evaluate their knowledge and to make self-judgments through reflections.

  "When I started to fill the KWL table at the beginning of the lesson, I understood that my knowledge about the methods that can be used to assess the special needs students was very little. However, when I filled the 'L' column at the end of the lesson, I was happy because I felt that I had got a better knowledge than previously". (Student participant no. 12)

Findings of the Focus Group Discussion with Educators

Findings revealed that the suitability of the KWL method to use in developing self-regulated learning skills, challenges faced by educators and their suggestions to overcome them.

Educator no. 2:

"Students can complete this table individually, as a group or as the entire class. If the student number is large in a class, it is better to have a group approach or fill the table as the entire class. If the group approach is used, each group should present their facts to other students, and if the entire class fills the table, the teacher should display it to the whole class. If each student fills the table individually, the teacher can use it to identify the prior knowledge of each student and can use it as a tool to assess each student. When reviewing the existing literature Jones (2012) also states that students can fill the KWL table individually or in a group setting. Riswanto and Lismayanti (2014) state that a group of students learning with the KWL method had better results than the group learning in a traditional way".

Educator no. 1 and educator no. 3 also agreed that the KWL method is a beneficial method that can be used in the teaching-learning process to direct students to be active and responsible learners.

Challenges Faced by the Educators and Measures to Overcome

Time management and providing further information asked for by some student participants during the limited time period were challenges for educators. By allocating and maintaining a particular time for each activity of the lesson and by providing relevant links (to web sites, Open Educational Resources, Electronic books, journal articles, blogs, etc.) and a list of references of books to student participants for further reading, the educators were able to face these challenges.

After analysing all the above data collected through the researcher's observation, reflections of student participants and the focus group discussion, the following findings were obtained about the impact of the KWL method.

Impact of the KWL Method

- The KWL table directed the student participants to form their own learning goals, motivated them to engage in the learning activity to reach their goals and to monitor their progress metacognitively.
- This table guided student participants to activate their prior knowledge and the memory of the strategies used in a similar learning situation and built up their interest and curiosity about the lesson to be learned. Further, it helped to build new knowledge upon the existing knowledge.
- The KWL table helped student participants to construct their knowledge by guiding them to be active and responsible learners.
- The KWL table helped the educator also to identify the level of student participants' existing knowledge and what they expected to learn during the lesson. Therefore, it was beneficial to plan their lessons successfully.
- Work with a KWL table pushed them towards further learning, which is very important for students studying in the open and distance learning environment.

- Individual activities given in the intervention helped students to develop their organisation skills and elaboration skills.
- Group activity used during the intervention facilitated interactions between student participants helped to motivate them. Giving opportunities to provide feedback about presentations done by peers helped to develop their critical thinking skills and positive feedback they obtained helped them to develop their self-efficacy.

Recommendation

Based on the findings of the research, the impact of the intervention was positive. Therefore, the KWL strategy is recommended for educators as a self-regulated skills development strategy that can be adopted in the Open and Distance Learning environment in Sri Lanka.

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