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Developing Task Persistence Skills in College Students with Hard of Hearing Using Strategic Content Learning

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ABSTRACT

Poor task persistence is a major inhibitor of effective learning among students with hearing impairment. This study investigated the effect of strategic content learning (SCL) on poor task persistence of students with hearing loss in Nigeria. The study adopted a pretest-posttest control group design. A total of 117 participants from four special schools for hearing impaired in South-East Nigeria completed a task persistence scale at pre-treatment, post-treatment, and follow-up. Intervention was carried out for nine weeks using strategic content learning program manual. Data collected were analyzed using repeated-measures analysis of variance, chi-square, and t-test. Results revealed that task persistence of hearing impaired college students of SCL group were significantly improved compared to those in waitlist control group at the end of the intervention. Follow-up tests conducted after three months and six months revealed that the significant improvement in task persistence of participants in the experimental group was sustained. Result of the current study show that SCL is an effective strategy straining approach that can improve students' task persistence in different areas of learning. Further studies could be conducted in Nigeria and other countries to investigate the efficacy of SCL in improving self-efficacy and volition among diverse populations of students.

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INTRODUCTION

Overview of Strategic Content Learning and Self-Regulated Learning

Training college students with hearing impairment to take up the responsibility of their own learning could be of lasting effect in making them persist in academic tasks for effective learning and career development. As students go through school grades, they are not only expected to achieve high academically, but they also ought to build up skills to persist adequately in tasks, and take greater responsibility for their own learning (Wang, 2021). It is has been well established in the literature that building self-regulated learning (SRL) skills among college students could serve as an effective strategy for building their task persistence as they progress in their academic pursuits (Onyishi, 2013). This justifies the high emphasis placed on SRL in colleges as students appear to lack the essential strategies required for a quantum of persistence to better their learning, such as making proper summaries, or keeping their motivation high (Wang, 2021). Lack of SRL skills tends to manifest more among the hearing impaired student population (Chen, 2014), necessitating learning strategy instruction.

Evidence tends to indicate that students are unlikely to develop effective learning strategies on their own without strategy instruction (Wolfolk, 2011). Evidences show that self-regulation

could be taught and learned to increase the motivation and achievement of all students' population (Wang, 2021). Zimmerman and Schunk (2001) found that when students and teachers use metacognitive strategies to guide learning and instruction, they achieve the greatest academic success. On the other hand, when instructions are geared towards both academic learning, and self-regulated strategy development, learners become more confident in adapting strategies reflectively and flexibly within recursive cycles of task analysis, strategy use, and monitoring (Van Keer & Vanderlinde, 2010). However, research shows that many students have not been taught the metacognitive skills needed for considerable academic success in learning settings (Jaleel, 2016). Butler (1996) presented a model through which learners can be helped to strategically approach learning tasks persistently for enhanced learning. Strategic Content Learning (SCL) is a learning model in which the learners are guided to learn a given content and also learn the procedures and task-specific strategies involved in learning the content. During strategic content learning instruction, the teacher does not provide explicit modeling but uses comments and questions to help students develop their own learning strategies. Strategic content learning is a process and a product that involves guiding the learner to choose a task (self-initiation) and guiding him/her through a self-regulated learning cycle of goal setting and regulating one's effort to reach the goal. To this effect, rather than focusing only on learning the content, Strategic Content Learning (SCL) model equips the learners with calibrated learning strategies appropriate for the given content.

SCL theory proposes that guiding the learners through cycle of self-regulated learning activities associated with successful learning could help sustain their persistence in academic tasks and enhance task accomplishment (Gandhi & Varma, 2010). It involves guiding the learner through a self-regulated learning process of analyzing task requirements; selecting, adapting, inventing, and implementing strategies for learning the task; monitoring progress; and revising and evaluating goals, strategies, or both. The key principle of this model is that, together with learning subject-specific content, the learners will construct metacognitive knowledge, motivational beliefs, and resource management skills that may enhance their task persistence. Strategic Content Learning has been found to equip students with learning disabilities with both successful learning of the content and also the task-specific strategies necessary for self-regulated learning (Gandhi & Varma, 2010; Woolfolk, 2011). It has also been found to improve task Performance, Metacognition, Self-Efficacy, Attributions, strategy development, and transfer of strategy use (Adimora et al., 2013).

Over the last few decades when SCL was introduced as an intervention strategy for students with learning disabilities; the model has been widely applied across various content and populations of learners both on one-on-one, and group bases (Butler, 1996; 1998; Butler et al., 2000; Adimora et al., 2013). However, works investigating the efficacy of this learning model in reducing students' poor task persistence in learning were not found in the literature. Studies have examined the relationship between student learning and persistence (Hu et al., 2012); student engagement and persistence, and resilience and persistence (Hu & Ma, 2010). Yet, it is not clear exactly what teachers and students can do to facilitate persistence and achievement among the hearing impaired student population (Jackson, 2014). Research-based evidences show that when students are actively involved in classroom discussions (as in SCL), persistence could be enhanced, therefore raising graduation and retention rates (AlKandari, 2012; Jaleel, 2016). Evidences further show that effective classroom instruction which is based on activities that involve students academically and socially with both teachers and peers (e.g SCL) increased college students' learning and reduces negative student behaviors like poor persistence (AlKandari, 2012; Allen, 2011; Haydon & Hunter, 2011; Reuben, 2014). However, a major gap evident in Nigerian context is that though SCL model has been found to be effective among students with learning disabilities, no study found in the literature investigated the model among the population of hearing impaired college students who have been identified as having poor task persistence. We advanced the research in the area by investigating the

effectiveness of the model on improving task persistence of college students with hearing impairment.

Task Persistence of Hearing Impaired College Students

Task persistence is central to adaptive learning and has been linked to high academic outcomes (McCracken & Samuel, 2007). There are high links between persistence academic achievement, personal development, engagement, and overall accomplishment in life (Lee et al., 2011; Madhlangobe et al., 2014). Poor persistence has been identified as a behavioral deficit that could inhibit academic competence, educational attainment, and ability to cope when they encounter difficulties in achievement situations at later age (Bazelais et al., 2016; Chang, 2014). Other studies link poor persistence with maladaptive achievement behaviors as school dropout, poor academic achievement, and poor life accomplishments. Task persistence is defined as the length of time and amount of effort a learner is able to expand in order to master a task, solve a problem or attain a learning goal (Bazelais, et al., 2016). Furthermore, persistence is associated with goal-directed and purposeful behaviors, which are characteristics of great importance in academic tasks. Studies show that persistence correlates with degree completion and graduation rates in college (Hu et al., 2012; Mamiseishvili & Koch, 2011).

Despite the importance of persistence to academic progress, one major problem apparent in Nigeria context is poor academic task persistence which is the index of poor academic achievement and high prevalence of dropout among college students who are with or without hearing impairments (Chen, 2012). According to United Nations (UN) statistics on dropout rate, Nigeria has the highest number of dropouts among the member countries (UN, 2013). Dropping out of school or college evinces poor persistence among the students and tends to have negative consequences, impeding both individual and economic prosperity (Farid-ul-Hasnain & Krantz, 2011). The historically low rate of college completion has made student success a longstanding interest of educational researchers (Hu et al., 2012). This problem is more severe among students with disabilities such as hearing impairment as such students drop out of school at twice the rate of general students (Wagner, & Blackorby, 1996). Research evidences abound identifying poor task persistence as an index of school dropout and poor productivity in later stages of life (Adene et al., 2020). It has also been found that hearing loss imposes great level of limitations on individuals, reducing the individual's persistence across academic tasks and completion across school grades (Blazer et al., 2016). To date, studies are still showing that students with hearing impairment in Nigerian schools face major challenges like poor attitudes toward task actualization, less productivity, and poor academic performance (Obiakor & Offor, 2011; Ogundiran & Olaosun, 2013). Decrying the state of academic well-being of those with impairment in Nigeria, (Njoku & Ihugba, 2011) found that hearing impaired population consistently falls behind their academic task achievement. On that note, their morale to persist in academic task could negatively affect their doggedness.

Research studies abound indicating that part of the factors placing the hearing impaired students in consistent poor achievement when compared with their hearing peers is their characteristic poor academic task persistence (Adene, et al., 2020). Evidence shows that persistence could mediate the effect of hearing impairment on academic achievement (Ogundiran & Olaosun, 2013). Thus, identifying and intervening against poor task persistence among populations of learners could be a productive means of addressing poor academic outcomes. However despite the growing research in the area of academic improvement of the hearing impaired students, to the best of researchers' knowledge, no research has been conducted in Nigeria context to improve the task persistence of hearing impaired college students as a way of enhancing their academic and life accomplishments. Additionally, intervention for task persistence will help in college completion among students with hearing impairment. Further, building students' self-regulated learning skills will improve personal outcomes. The current study utilized strategic content learning strategies as an intervention program to improve academic task persistence of college students with hearing impairments.

We hypothesized that the poor task persistence of college students with hearing impairments in the experimental group will be significantly reduced compared with their counterparts in the waitlist control group at the end of the intervention, and the gains of the intervention might be maintained for the experimental group at follow-up.

Theoretical Framework

Strategic content learning model is anchored on eclectic theoretical basis of Bandura's social cognitive view of learning (1986) and self-regulated learning theory Zimmerman and Schunk (2001). Bandura theorized that human beings can to control their behavior through self-regulation, including self-observation, judgment, and self-response. Self-observation involves an individual assessing his/her own thoughts and feelings in order to inform and motivate himself to work towards goal setting and accomplishments. Comparing one's performance to their personal or created standards (self-judgment) and self-response (reward or punishment which one gives his or herself for success or failure in meeting standard) are other processes that accrue from self-observation. Zimmerman and Schunk (2001) expanded on Bandura's theory by adding that social and instructional variables affect self-regulation. They theorized that strategies oriented towards self-regulated learning and achievement processes enhance individual learning. Guiding the students to actively construct content knowledge and simultaneously develop self-regulated learning strategies which could be applied across content areas are major goals of strategic content learning (SCL). SCL model is also closely linked to Self-Regulated Strategies Development by Panadero (2017). SCL and Self-Regulated Strategies Development by Harris and Graham has common principles of helping students develop and apply strategies flexibly in the context of meaningful tasks, recognizing the importance of interactive dialogue in students' development and mastery of task-specific strategies; and attention to ways in which students construct understandings about tasks, strategies, factors responsible for successful performance, and their self-competence as learners. This study advances research evidences suggesting that these instructional features can be effective in helping students' self-regulation to promote their persistence on tasks across content areas.

RESEARCH METHOD

Ethics Statement and Privacy Regulation

Approval for the conduct of this study was obtained from the Department of Educational Foundations, University of Nigeria, Nsukka. School principal of the concerned schools granted the researchers official permission to conduct the study. Only students who voluntarily felt the need for assistance in learning and gave verbal consent were included. The parents or caregivers gave written informed consent for their child's participation prior to data collection. Before the assessment started, all children were assured that their responses would be processed anonymously.

Design of the Study

The research adopted a pretest-posttest control group design. One school served as treatment group while the other was a waitlist control group. The treatment group received instruction with Strategic Content Learning while the waitlist control group did not.

Participants

A total of 117 hearing impaired college students met the inclusion criteria who were class 5 students in special schools for the hearing impaired in South-East Nigeria. The 117 participants who met the inclusion criteria were randomly grouped into treatment and waitlist control groups. Demographic information of the participants across the treatment and waitlist control groups is shown in Table 1 below.

Table 1. Demographic characteristics of participants.

Characteristics	Dimension	Treatment group(n=59)	Waitlist Control group (n=58)	X^2	Significance
Gender	Male	30(25.64%)	22(18.80%)	.229	.746[b]
	female	29(24,8%)	36(30.76%)		
Age[a]	M±SD	16.5±2.1	16.3±2.0	.000	.688[b]
Level of impairment	Mild n (%)	31(26.49%)	39(33.33%)	.000	.896[b]
	Moderate	19(16.23%)	11(9.40%)		
	Totally deaf	9(7.69%)	8 (6.63%)		
Ethnicity	Igbo n (%)	14(11.96%)	14(11.96%)	.030	.348[b]
	Hausa	13(11.11%)	18 (15.38%)		
	Yoruba	14(11.96%)	13(11.11%)		
	Others	18(15.38%)	15 (12.82%)		

n: Number of participants.
X^2: chi-square.
[a]Mean age (Standard deviation) of participants.
[b]t-test result for age compares.

A total of 117 participants met the study inclusion criteria, who were class five students in hearing impaired special schools in Southeast, Nigeria. Table 1 shows the demographic information of the participants across treatment and waitlist control groups. The mean age of the treatment group participants was 16.5±2.1 years, while that of the control group participants was 16.3±2.0 years. Participants were distributed according to gender, level of hearing impairment, and ethnicity (see Table 1).

Measures

Demographic Questionnaire: This instrument was utilized to ascertain the participants' characteristics. It was designed by the researchers and included information such as gender, age, level of impairment, and ethnicity. The students gave information on each student's level of impairment by ticking mild, moderate, or profound against each student's name.

Hearing Impaired Student Task persistence Scale (HISTPS): Hearing impaired students' task persistence scale (HISTPS) is a 19-item self-report questionnaire developed by the researchers to rate the extent to which students persist in academic tasks. The scale consists of 19 item statements structured on four points Likert-type scale ranging from Not at all true (1), a little true (2), mostly true (3), and really true (4). HISTPS can be completed in 10-12 minutes. Sample items of the instrument include "I often do not complete many activities I begin" "Even if I fail to solve a problem, I try again and again and hope that I will find a solution" "When I read a book, I do not like to take breaks until I finish it" "I won't try to solve a problem again and again if I don't find the solution in the first time I try it" "I do not stop learning even if the task is very difficult.

Development of Hearing Impaired student Task Persistence Scale: In developing HISTPS, 28 items were adapted from persistence scale for children, used in Lufi et al. (2003) which is a standardized measure made up of 40 items structured to measure children's persistence in different areas. Dubi and Arie persistence scale requires respondents to answer yes or no to the items. The researchers restructured some items of the measure to specify students' persistence in learning tasks on a four-point scale. Some of the restructured items include: item fifteen of Dubi and Arie "When I fail in something, I am willing to try again and again forever" which was adapted to when I fail to succeed in learning a task, I am willing to try again and again until I accomplish it. Others include: I will stop my work on time even if I do not finish it- I will stop my classwork on time even if I do not finish it. I do not persist in most of the things I do- I do not persist in learning difficult task. The 28 items that were adapted initially were reviewed by two experts in Educational Psychology. Thereafter, one other experienced expert with a

doctoral degree in Learning Psychology and two experts in Educational Measurement and Evaluation validated the measure's degree of agreement, accuracy, and clarity of items validated by the first two experts. Only twenty one of the twenty eight generated items survived the validation and seven items were dropped based on validators' comments and suggestions. Fifty copies of the validated scale were then distributed to the study participants who completed the measures as trial testing. Data collected at the trial-testing exercise were analyzed by statistician and a benchmark of $\alpha \geq .70$ representing satisfactory internal consistency for each item was set by the researcher in line with Jorritsma, deVries, Dijkstra, and Reneman (2012). Based on analysis of internal consistency, 2 items that did not meet the set benchmark were dropped. Nineteen items that met the internal consistency benchmark were used for the scale.

Procedure

Data were collected from two groups of participants; (experimental and waitlist control) on four different occasions (pretest, posttest, three months follow-up, and six months follow-up). The students were informed about the study by displaying information at strategic places in the schools and in the school notice boards in special schools for the hearing impaired within the study area, from August 2016 to December 2016. The school principals and teachers were asked to inform their students about the nature and purpose of the study during morning assemblies and in various classes for about four months. Five teachers in the hearing impaired schools were trained as SCL tutors who served as the research assistants to compliment the researchers during the study. These teachers were selected based on their expertise in teaching and communicating with the hearing impaired students. A 5-day training program which held between January 5th - 10th 2017 was organized and conducted for the teachers selected as research assistants. The aim of the training program was to expose the teachers to the concept and use of Strategic content learning. In addition to concept and use of SCL, the researcher adopted sessions 5 and 6 (appendices A, B, and C) of the SCL tutoring program (Access and Diversity, 2014). Those sessions adopted addressed the tutoring session, client-tutor conduct, implementation examples, sample timesheet, and client information. The teachers who served as research assistants received financial rewards.

Participants in the experimental and waitlist control groups completed HISTPS pretest. SCL intervention program consisting of eighteen 2-hours sessions was used to give extensive training to participants in the experimental group, two sessions a week for 9 weeks (between January-march 2017). The manual was adapted from Tutor Protocol Manual 2013-2014 of Access and diversity, University of Columbia, and other relevant information in the literature. The aim of the program was to enhance the task persistence of students with hearing impairment.

Three special school teachers with adequate background in the principles and practice of SCL and who are also skilled in local and American sign languages delivered both the training of the research assistants and the intervention with strategic content learning manual. Participants in the experimental and waitlist control groups completed HISTPS posttest. Follow-up assessment was performed three and six months (May and August respectively) later for treatment group participants. All lesson sessions were translated in sign language for easy comprehension by the participants.

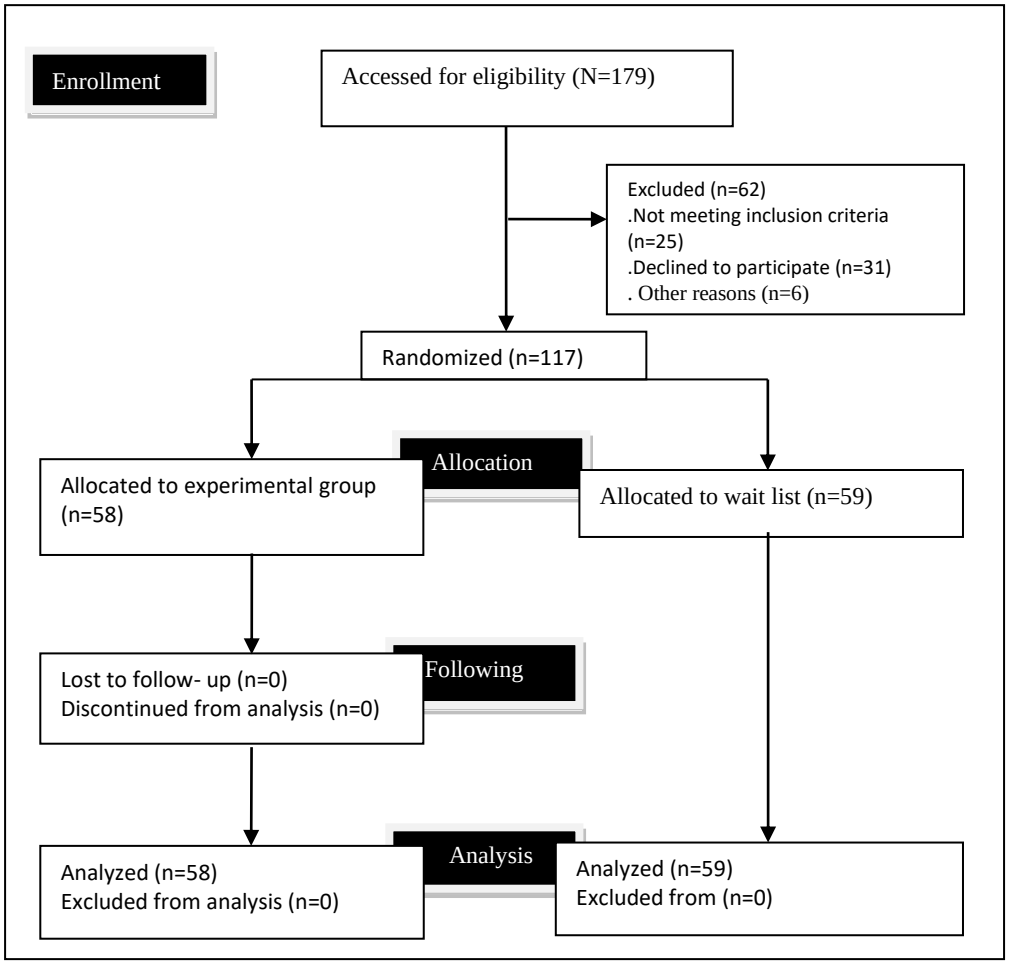


Figure 1. Participants' flow chart

Intervention

The SCL intervention program manual was developed and used by the researchers to help participants use specific tactics to self-regulate their learning in order to reduce poor task persistence. The researchers with the research assistants utilized the SCL model to assist individual participants using specific tasks in content areas across Mathematics, English, and Science as in Butler et al. (2001). Since the intervention was geared towards improving academic task persistence, academic tasks were selected across content areas based on the participants' disposition, interests and needs. Problems handled during the intervention sessions were strictly based on participants' selection. The researcher applied this technique by direct teaching of the learning steps involved in SCL and by adopting it during small group learning activities. Learning through the process of SCL, participants could approach learning in more adaptive ways as it could impact their persistence. Based on the program manual, the researcher finally capitalized on the immediate feedback feature and strategic dialogue of SCL (Tutor Protocol Manual 2013-2014) to motivate the participants to persist effectively on learning tasks.

The content of the intervention was validated by two SCL experts. Face validation of the manual was intended to assess degree of agreement, accuracy, and clarity of the content of the intervention program. Some of the intervention activities include building a good rapport with study participants; exposing participants to the concept of SCL, general purpose of SCL, and program expectations; creating problems list in content areas; approaching each problem from the list based on the SCL model, and techniques involved in SCL intervention; working toward familiarizing participants' with SCL strategies by adopting the strategy in learning academic tasks; encouraging the participants to see learning as their own responsibilities and not that of the teacher.

Design and data analysis

The study adopted a pretest-posttest control group design. The repeated-measures analysis of variance (ANOVA) was used to report the effect of the SCL program on participants' task persistence. Version 20 of the Statistical Package for the Social Sciences, (SPSS 20) was used for the analyses.

RESULTS AND DISCUSSION

Table 2. Repeated-measures ANOVA tests showing effect of SCL on poor task persistence of participants by treatment condition and time.

Measure	Assessment	Group	N	M	SD	95% CL	F	Sig	n^2_p
HISTPS	Pre-test	Experimental (E)	59	38.11	11.40	31.64-41.68	.890	.347	.008
		Waitlist control (WL)	58	38.57	8.36	32.56-40.20			
	Post-test								
		Experimental (E)	59	86.36	9.70		162.116	.000	.596
		Waitlist control(WL)	58	38.57	13.80	80.42-91.82			
	Follow-up 1		59	85.99	9.70	38.91-46.81			
	Follow-up 2	Experimental	59	86.39a	10.03				
		Experimental				81.59-90.38			
						81.91-81.91			

ANOVA: Analysis of Variance.
CSCTS: College Students' Career Thoughts Scale.
CI: Confidence Interval.
M: Mean.
SD: Standard Deviation.
n: number of participants in each group

The results in Table 2 show the study outcomes for the participants in the SCL group compared to those in the waitlist control group. Table shows no significant baseline difference in task persistence between participants in the treatment and waitlist control conditions, F (.890), p=.347 with partial eta squared $n^2_{p=}$ .008. Using the CSCTS, the repeated measures ANOVA test revealed a non-significant treatment by impairment interaction effect on task persistence of hearing impaired students (See Table 2). Comparing the persistence across the treatment and waitlist control groups in the follow-up tests, hearing impaired college students in the experimental group showed a significant improvement in task persistence after intervention over their counterparts in the waitlist control group.

The result shown in the table means that the Strategic Content Learning significantly improved the task persistence of college students with hearing impairment in the experimental group compared with their counterparts in the waitlisted control group at end of the intervention. More so, the finding was also maintained at follow-up assessments. As a result, SCL is effective in reducing poor task persistence among students with hearing impairment. In consonance with the results, Woolfolk, (2011) showed that SCL is efficacious in enhancing task persistence and performance of students with learning disabilities. The results of the present study support prior educational researchers (Gandhi & Varma, 2007) which hold that strategy instructions facilitate students to improve their metacognitive ability and persistence skills despite their location and time. The results of the current study add to the existing literature on the effectiveness of this approach in enhancing task persistence of students with hearing

impairment. In the process of this study, students through interaction with the instructors (ideally) learned how to build effective personal strategies for coping with different academic tasks in mathematics and reading (Gandhi & Varma, 2007). Specific instructional approach involved in SCL is that teacher (a) collaborated with students to complete meaningful work, (b) diagnosed students' strengths and challenges by listening carefully to students work they work on task, (c) guide students in problem-solving while working towards achieving task goals, (d) provide calibrated support in given students' areas of need to cue more effective cognitive processing, (e) used interactive communication to help students make sense of experiences, and (f) asked students to articulate ideas (e.g., about task criteria, productive strategies) in their own words to promote distillation of new knowledge.

This could be further explained by the fact that strategic content learning is a strictly learner-centered approach to learning. It is also problem-solving-oriented and places the learner with the responsibility of learning and monitoring their learning activities. Such instructional techniques improve academic achievement and persistence. Another feature of strategic content learning which makes it effective is that it enables the students to apply a variety of specific learning techniques which increase their skills for problem-solving and task persistence chances to overcome learning tasks (Woolfolk, 2011).

Considering gains in self-regulated learning strategies, the data was obtained from various sources that included qualitative sources (researcher's field notes and observation). The findings related to each variable were obtained in conjunction with quantitative scores from all the qualitative sources. Finding indicated a shift in student's knowledge and beliefs related to the process of learning. It was observed that students gradually developed a positive shift in their beliefs, a focused understanding of problem-solving strategies, and management of learning. These transformed into observable shift in task persistence. For instance, students showed observable increase in task interest as they progressed in tasks.

Generally, students learned to think about the task, devise or plan the strategies that would be most appropriate for solving the problem. With time, students gradually developed skills for task analysis, strategy selection, self-evaluation, and self-monitoring. At the initial phases of the study, students spent much time before specific task completion, requiring much instruction and guidance from the instructors. But it was observed that students took less time to solve the problems in the latter sessions indicating that they could efficiently organize their strategies to work out task solutions in much less time and with fewer instructions and guidance from the instructor. This reduction of the need for instructions and guidance with passage of time may indicate that students improved in their problem-solving efficacy with time.

Strategies that the students developed included steps focused on each of the cognitive processes central to self-regulation. For example, students' strategies included steps related to problem analysis (e.g. "find out what the problem is asking for"). Each student had a column in the worksheet where he/she is expected to write out in simple terms what is the expectations for the task presented (analyzing the task demand). Through this, students could state appropriate goals for each task without instructor's guidance. Strategy selection and use based on task demands (e.g. "I think we need to make a table") also gradually became the students' learning routine. This was evidenced in students being able to select appropriate strategies such as building a table, making selections of principles or theory (e.g, in mathematics, they could write down the particular theorem appropriate to a problem in geometry). Students also had gains in self-evaluation skills: they could re-read and think about how their equation relates to given problem, after each task students could match their works with the standard e.g, students who got it right were able to restate what they have done that led to their success by stating all the steps they applied. Those who got it wrong were also able to read the problem to find where they went wrong or what they should have removed or brought in to get it right. Revising goals and strategies, there were shifts in students' abilities to make strategic adjustments given progress perceived, e.g. rethinking about the underlined data finding out if the set goals were all accomplished, or there is need for further efforts; trying out the strategies/steps in similar

tasks. Strategic content learning is best evidenced when students responsively vary strategic approaches based on task demand. Thus, a measure of strategy development translated into reduced poor persistence and left the students as expert learners (Wang, 2015; Ertmer & Newby, 1996).

CONCLUSION

Poor task persistence is a dysfunctional learner factor which inhibits effective learning in all school subjects. This study examined the effect of an SCL intervention on the poor task persistence of a sample of college students with hearing impairments Nigerian. Poor task persistence could limit students' abilities to learn effectively their age-appropriate academic tasks across content areas. Thus, it is essential to identify and expose such students to learning strategy that is capable of improving their persistence in learning academic tasks. Findings from this study indicate that SCL was effective in reducing poor task persistence of hearing impaired students in schools for the hearing impaired in Nigeria. The low task persistence of the SCL group participants was significantly minimized and persistence improved significantly compared to waitlist control group participants at the end of the intervention. Further, the significant decrease in poor task persistence of the SCL group participants remained sustainable over a period of time. This had some limitations apart from the positive outcomes. The authors acknowledge that the study sample size was small and also included only senior secondary school students in special schools for the hearing impaired in Nigeria. Future studies should include a large sample size and students from other school types (e.g., inclusive schools and regular education settings) to determine whether the findings of the study can be generalized. The present study did not consider the moderating effects of the demographic variables like age, gender, and ethnicity, and these could limit the contribution of the study. The present study did not measure the cumulative achievement of the participant at the end of the study. Progress was only determined by the students' success in each given task and this could limit the claims of the study as to the students' achievement gains. Measuring only students' persistence cannot state clearly how productive such persistence could be in the content of SCL.

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