JERN Journal of Education and Research in Nursing

Original Article
DOI:10.14744/jern.2023.22533
J Educ Res Nurs. 2023;20(4):374-379

Psychometric Properties of the Turkish Version of the Self-Regulated Learning Scale in Clinical Nursing Practice

Aydan Baysan[1], Fatma Orgun[2]

[1]Department of Nursing Education, Manisa Celal Bayar University, Faculty of Health Sciences, Manisa, Türkiye
[2]Department of Nursing Education, Ege University, Faculty of Nursing, İzmir, Türkiye

Abstract

Background: Self-regulated learning (SRL) is important in nursing education as it helps students take ownership of their learning and become more independent learners. This can be particularly important in a field like nursing, where the ability to continue learning and adapting to new situations is crucial.

Aim: The aim of this study was to assess the psychometric properties of the Turkish version of the SRL Scale in Clinical Nursing Practice (SRLS-CNP).

Methods: The study sample for this cross-sectional validation study consisted of senior nursing students (n=296). First, the translation and back-translation methods were used to ensure the language validity of the scale. To provide content validity, expert opinions were taken, and a pilot study was conducted. Confirmatory factor analysis and Rasch analysis were performed to demonstrate construct validity. Concurrent validity was analyzed using the Self-Directed Learning Readiness Scale. The test–retest method and Cronbach's alpha coefficient for the total and subscale scores were used to analyze the reliability of the scale.

Results: Similar to the original scale structure, a structure consisting of two subdimensions, titled motivation and learning strategies, and five factors related to these subdimensions were demonstrated in the first- and second-level confirmatory factor analyses and Rasch analyses. The scale was found to have concurrent validity (r=0.613) and test–retest reliability (r=0.878). The Cronbach's alpha value of the total scale was 0.898.

Conclusion: The SRLS-CNP, which consists of 16 five-point Likert-type items in two subdimensions, is a valid and reliable measurement tool for Turkish society.

Keywords: Learning strategies, motivation, nursing education, self-regulated learning

Introduction

There is a tendency in the current understanding of education, in nursing education as well as in other areas, toward learner-centered approaches in which the teacher acts as a facilitator.[1,2] Self-regulated learning (SRL), one such learning scheme, is generally defined as a process in which the learner actively participates in the learning process in metacognitive, motivational, behavioral, and emotional aspects.[3-5]

The concepts of motivation and learning strategies are manifest in SRL. Self-regulated learners need to be motivated to monitor, evaluate, and make necessary changes in their behavior during the learning process.[6] These individuals first determine their learning goals and plan to achieve them, decide which learning strategies are suitable for them, monitor themselves throughout the process, evaluate themselves according to the standards they set, and plan for further learning activities.[7-10]

Strategies used in SRL are skills that enable students to learn by structuring knowledge and applying what they have learned in real life.[11] Cognitive learning strategies are unique processes and behaviors that individuals use to regulate cognitive resources such as attention and long-term memory to reach a standard or learning goal.[12] Examples of cognitive learning strategies include *repetition strategies*, such as reciting the text out loud or by heart; encoding *strategies*, such as taking notes and using explanations and keywords; and *organizing strategies*, such as summarizing and mapping.[13]

In SRL, individuals also use *metacognitive strategies*.[14] Metacognition can be briefly defined as individuals' awareness of their knowledge, learning process, cognitive and

This study was presented as an oral presentation at the 2nd International Nursing Education Congress in Palandöken between October 24-26, 2019.

This article was prepared from Aydan (Şenol) Baysan's Master's thesis (Thesis No: 531346).

Cite this article as: Baysan A, Orgun F. Psychometric properties of the Turkish version of the self-regulated learning scale in clinical nursing practice. *J Educ Res Nurs.* 2023;20(4): 374-379.

Corresponding author: Aydan Baysan
E-mail: aydanbaysan@gmail.com

Received: December 29, 2022
Accepted: April 10, 2023
Publication Date: December 1, 2023

affective state, and their ability to regulate them.[15] Self-observation, evaluation, and reaction processes involved in self-regulation constitute the metacognitive part of SRL.[16]

It has been stated that SRL supports the teaching and learning of reflective clinical reasoning in nursing practices.[17] The theoretical framework of SRL in nursing education was set out by Kuiper et al (2010).[18] Their SRL model included behavioral, environmental, and metacognitive self-regulation components. They have also suggested that self-regulated education can improve the clinical decision-making process and metacognitive thinking skills that enable the development of competency in nursing practices.

There are several studies where the SRL was integrated into nursing education. In a cluster analysis study, Salamonson et al (2016) investigated the relationship between 1st-year nursing students' sense of consistency, SRL strategies, and academic achievement in biological sciences.[19] It was found that the students in the high-consistency cluster used SRL strategies more often. A quasi-experimental study by Sanaie et al. (2019) compared the effects of traditional teaching and jigsaw techniques on nursing students' SRL and academic motivation. It was found that the jigsaw technique increased SRL and academic motivation more than the traditional method.[20]

Another study investigated the effect of using SRL strategies on improving the cognitive and psychomotor skills of nursing students in a web-based learning environment. It was found that students adopted SRL strategies and successful students were able to manage their learning processes and motivations in a web environment.[21]

As a result of the literature review, it was concluded that although there are some studies related to SRL in nursing education, there is also a need for a measurement tool that can be used for studies examining SRL in clinical practice among Turkish nursing students. For this reason, the objective of this study was to adapt the SRL Scale in Clinical Nursing Practice (SRLS-CNP) in the Turkish language and culture and evaluate its psychometric characteristics.

According to this objective, the research questions are as follows:

1. Is the Turkish version of the SRLS-CNP valid?
2. Is the Turkish version of the SRLS-CNP reliable?

Methods

Study Design

This cross-sectional validation study consisted of cross-cultural adaptation and psychometric properties evaluation phases. The "STrengthening the Reporting of OBservational studies in Epidemiology" checklist was used in the reporting process of the research.

Sample and Sample Size

The study sample consisted of 296 volunteers who were senior nursing students and could be reached between March 2018 and July 2018 in Izmir. A study group with a number of participants is 5–10 times the number of items or a study group of 100–200 individuals (if the number of variables is not high and the factors are strong and distinct) is deemed sufficient to conduct reliability and validity analyses.[22,23] A pilot study was also carried out on 48 senior nursing students studying in a school of health sciences similar to the study group.

Data Collection Tools

The introductory information form was used to determine the sociodemographics (age and gender distribution) of the participants.

The SRLS-CNP was developed by Iyama and Maeda (2017) and consisted of 16 items organized in two subscales and five factors related to these subscales. The *motivation* subscale consists of two factors: *intrinsic motivation* and *achievement motivation*, while the *learning strategies* subscale consists of three factors: *synthesized knowledge and nursing skills*, *multidimensional thinking*, and *effort control*. In the original study, Cronbach's alpha value was found to be 0.853 for the total scale, 0.785 for the motivation subscale, and 0.814 for the learning strategies subscale. The items in SRLS-CNP are of five-point Likert type and scored between 1 (strongly disagree) and 5 (strongly agree) points, where the total score ranges from 16 to 80. A high score on the scale shows that the student uses SRL more often.[24]

The Self-directed Learning Readiness Scale (*SDLRS*) was adapted to the Turkish language by Şahin and Erden (2009). The SDLRS includes 40 items organized in three subscales: self-direction, desire for learning, and self-control skills. The items in the SDLRS are of five-point Likert type responded as strongly disagree (1 point) and strongly agree (5 points). There are no inverse-scored items in the SDLRS, and individuals with a total score of 150 or above are considered to have a high level of self-directed learning readiness.[25]

In the literature, it is seen that conceptually "SRL" and "self-directed learning" are very similar to each other and can be used interchangeably. For this reason, the SDLRS was used as a criterion, and it was assumed that individuals who use SRL more have higher self-directed learning readiness.

Data Collection and Analysis

- Stage 1: *Language Validity Process*
  The language validity of SRLS-CNP was ensured by the translation and back-translation methods. Six instructors whose native language is Turkish and who have a good knowledge of the English language translated the scale items into Turkish separately by considering the most appropriate sentence structure. Then, these translations were brought together and analyzed to determine the most appropriate expressions for each item. After the translation process, the items were back-translated into English by two independent translators. Finally, the original scale and the suitability of the translation were examined, and where needed, revisions were made without any change in meaning, and the final version of the scale was created.
- Stage 2: Content validity process
  For expert opinions, 11 faculty members specialized in different areas of nursing were consulted, and the Davis technique was used to evaluate their opinions. Experts scored the suitability of each item on a scale from 1 to 4. The content validity index (CVI) was calculated by dividing the number of experts who gave 3 or 4 points by the total number of experts for each item.[26] After calculating the CVIs and evaluating them, the scale was administered to a pilot group similar to the study group.
- Stage 3: The data were collected through face-to-face interviews, which took approximately 15–20 min, after obtaining informed consent from the participants. For test–retest analysis, students were asked to write their aliases on the forms, and the form was readministered to 36 participants after a 2-week interval.

- Stage 4: The first- and second-level confirmatory factor analyses (CFA) and Rasch analysis (RA) were performed to examine the construct validity. For CFA, a theoretical model reflecting the five-factor structure, similar to the original scale, was created and tested. Then, the second-level CFA was performed, in which these five factors were represented by two subdimensions.
  The unrestricted partial score model, one of the Rasch models, was used to analyze the internal validity of the SRLS-CNP. Two separate Rasch analyses were performed for *motivation* and *learning strategies* subdimensions since SRLS-CNP consisted of these subdimensions based on the CFA.
- Stage 5: The correlation between the total SRLS-CNP and SDLRS scores was examined for criterion-related validity (CRV).
- Stage 6: The Cronbach's alpha values of the total and subscale scores were calculated for internal consistency.
- Stage 7: The correlation between the scores obtained in the two separate administrations of the scale was calculated to evaluate the time invariance.

Statistical analyses for the validity and reliability of the scale were performed with IBM SPSS Statistics for Windows, Version 21.0 (Armonk, NY: IBM Corp.; LISREL 8.80 for Windows, Lincolnwood, IL: Scientific Software International, Inc. and RUMM 2030 for Windows, Version 5.3. Perth, Western Australia: RUMM).

Ethical Considerations

The study was conducted in agreement with the Declaration of Helsinki for research involving human subjects and was approved by Ege University Health Sciences Scientific Research and Publication Ethics Committee (Decision No: 20.478.486, Decision Date: April 18, 2018). Necessary permissions were obtained from the creators of the scales used in the study and from the institutions where the study was conducted.

Results

The majority of students who were involved in the study were female (79.7%), and while 81.4% of the students were between the ages of 20–23 years, 18.6% were between the ages of 24–27.

Findings Related to the Validity Analyses

Content validity

The CVIs ranged from 0.81 to 1.00 are shown in Table 1. All items in the original form were retained in the Turkish form since the CVIs for all items were 0.81 or above. In the pilot application, it was found that the scale items were sufficiently readable and understandable.

Construct validity

The goodness-of-fit statistics values obtained from the first- and second-level CFA are presented in Table 2. In the first-level CFA, factor loadings of the items varied between 0.34 and 0.91. In the second-level CFA, factor loadings of the items varied between 0.33 and 0.84 (Table 1). The Chi-square values and fit index values of the model obtained from the CFA are presented in Figure 1.

In RA, based on the log-likelihood Chi-square values, the "power of test-of-fit" criterion for the two subdimensions was deemed "good." The item fit residual was calculated as −0.013 for the *motivation* subdimension and −0.707 for the *learning strategies* subdimension. In addition, the person separation index (PSI), considered a reliability coefficient in RA, was found to be 0.808 for the *motivation* subdimension and 0.844 for the *learning strategies* subdimension. The correlations between the residuals of the items in the *motivation* and *learning strategies* subdimensions did not exceed 0.264 and 0.319, respectively.

Criterion-Related Validity

The correlation between the total scores obtained from the SRLS-CNP and SDLRS was found to be significant ($r_{xy}=0.613$, $P < 0.001$) (Table 1).

Findings Related to the Reliability Analyses

Internal consistency

The Cronbach's alpha coefficients were 0.898 for the scale total, 0.823 for the *motivation* subscale, and 0.883 for the *learning strategies* subscale (Table 1).

Time invariance

The test–retest correlation values were found to be $r_{xx}=0.878$ for the total scale, 0.808 for the *motivation* subscale, and 0.812 for the *learning strategies* subscale (Table 1).

Discussion

In this study, the reliability and validity of the Turkish version of the SRLS-CNP were evaluated. The validity and reliability studies support that the Turkish version of the SRLS-CNP, which has a similar structure to the original scale, is valid and reliable.

The CVI should be 0.80 or above, indicating a consensus among 80% of the experts, to ensure content validity.[26] The result indicated that the original and Turkish forms of the SRLS-CNP were considered equivalent in terms of language and content.

A Chi-square/df ratio of <5 is considered acceptable, while values <2 are considered good. The GFI, AGFI, and CFI values higher than 0.90 are acceptable, while those higher than 0.95 are good. The RMSEA, RMR, and SRMR values <0.08 are acceptable, while those <0.05 are considered good.[27,28] The goodness-of-fit indices in the CFA showed that the fit between the data and the established model was good. In addition, the factor loadings for the factors consisting of the items are expected to be high (higher than 0.60); factor loadings between 0.30 and 0.59 represent a moderate level of fit.[22,29] None of the items in the five factors in the SRLS-CNP have factor loadings lower than 0.30; the *t*-values of all items were statistically significant ($P < 0.001$). Therefore, the construct validity was demonstrated for the Turkish form of the SRLS-CNP.

The log-likelihood Chi-square values in the RA, the "power of test-of-fit" criterion for the two subdimensions was judged "good." The fact that the item fit residuals were in the range of ±2.5 indicates a good fit between these subscales and the Rasch model. In addition, the PSI, which is considered a reliability coefficient in RA, is desired to be 0.8 or above, while values between 0.7 and 1.3 are generally acceptable.[30] The significance levels for the Chi-square statistics of the items in subdimensions were $P > 0.001$, which indicated that the Chi-square values were not statistically significant, and the items fit the Rasch model.[31] In addition, the fact that the correlations between the residuals of the items were below ≤0.32 supported the conclusion that the local independence assumption was met for the data obtained from the scales and that each subscale measures a one-dimensional structure.

Table 1. Findings Related to the Validity and Reliability Analyses of SRLS-CNP (n=296)

Subdimension	Factor	Item No	CVI	1. level CFA factor loadings	2. level CFA factor loadings	Item fit residual (SD)	Log-likelihood Chi-square (df)	PSI	Chi-square	Inter-item residual correlations	r_{xy}		α		r_{xx}	
Motivation	Intrinsic Motivation	1	1.00	0.91	0.74	−0.013 (1.25)	53.388 (28) (p= 0.002)	0.808	10.97	0.264	0.613 (p<0.001)	0.871	0.823	0.898	0.808	0.878
		2	1.00	0.75	0.67				7.07							
		3	1.00	0.87	0.69				8.64							
		4	1.00	0.71	0.70				4.74							
	Achievement Motivation	5	1.00	0.75	0.73				5.67			0.804				
		6	0.90	0.74	0.78				9.82							
		7	0.81	0.79	0.84				5.48							
Learning Strategies	Synthesized Knowledge and Nursing Skills	8	0.81	0.69	0.50	−0.707 (2.17)	72.863 (36) (*P*=0.001)	0.844	11.52	0.319		0.758	0.883		0.812	
		9	0.81	0.68	0.50				3.95							
		10	0.90	0.74	0.56				4.17							
		11	0.81	0.75	0.53				2.26							
		12	0.81	0.34	0.33				10.46							
	Multidimensional Thinking	13	0.81	0.82	0.56				4.59			0.767				
		14	0.81	0.78	0.66				13.11							
	Effort Control	15	1.00	0.85	0.61				7.06			0,844				
		16	1.00	0.85	0.64				12.75							
						Power of test-of-fit: GOOD			*P*>0.001						p<0.001	

SD: Standard deviation, df: Degrees of freedom, r_{xx}: Test–retest reliability coefficient, r_{xy}: Pearson product-moment correlation coefficient, α: Cronbach's Alpha coefficient.

Table 2. The goodness-of-fit statistics values for the first-level and second-level confirmatory factor analyses (n=296)

	χ^2/df	RMSEA	SRMR	RMR	GFI	AGFI	CFI
First-level CFA	(162.14/94)=1.724	0.050	0.047	0.035	0.94	0.91	0.99
Second-level CFA	(148.23/97)=1.528	0.042	0.045	0.034	0.94	0.92	0.99

χ^2/df: Chi-square/degrees of freedom, RMSEA: Root mean square error of approximation, SRMR: Standardized root mean square residual, RMR: Root mean square residual, GFI: Goodness-of-fit index, AGFI: Adjusted GFI, CFI: Comparative fit index.

The correlation coefficient ranges between –1 and +1, where values close to +1 indicate a stronger positive linear relationship between the two variables.[32] The correlation coefficient between the total scores obtained from the SRLS-CNP and SDLRS showed that the two scales had a moderate positive correlation and that SRLS-CNP had concurrent validity with respect to the external criterion.

Cronbach's alpha coefficient is one of the commonly used indicators of the reliability of a scale. It takes a value between 0 and 1, and values closer to 1 indicate an increasing internal consistency of the items in the scale. Scales with a Cronbach's alpha coefficient between 0.60 and 0.80 are considered reliable, and scales between 0.80 and 1 are considered highly reliable.[33,34] The Cronbach's alpha

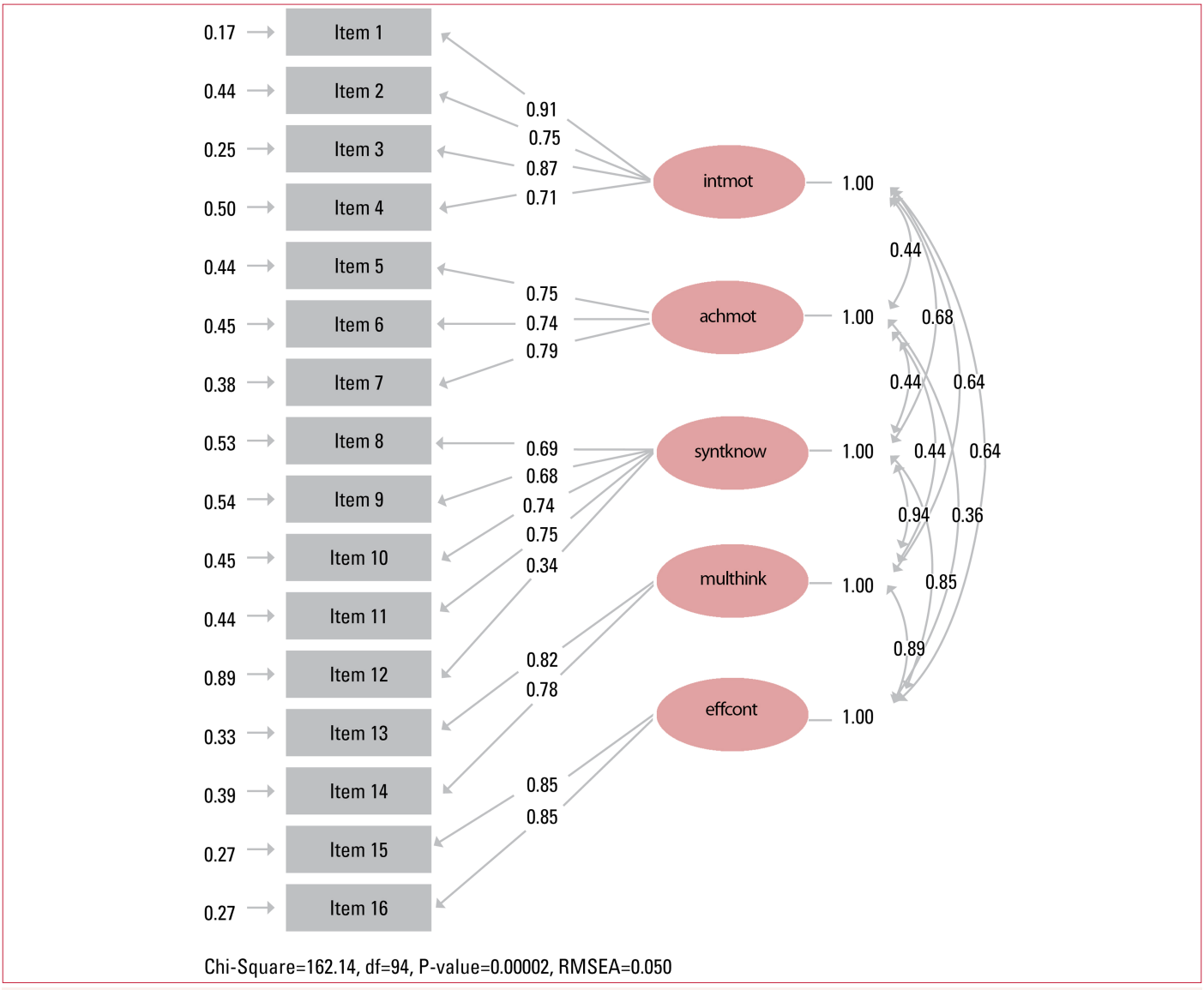

Figure 1. Confirmatory factor analysis path diagram of the SRLS-CNP.

coefficient values obtained in this study indicated that the Turkish version of the SRLS-CNP was highly reliable.

The test–retest correlation coefficient is suggested to be at least 0.80 or 0.70 in various studies.[35] The test–retest correlation coefficient value obtained in this study showed that the Turkish version of the SRLS-CNP had time invariance.

Limitations

The inclusion of only 4th-year students in the study is a limitation of the study since they are thought to have clinical practice experience and have developed their independent working skills. The collection of research data from a single institution is another limitation of the study.

Conclusion

The present study demonstrated that the SRLS-CNP is a valid and reliable scale for Turkish society. It is recommended that future studies should apply the scale SRLS-CNP in more diverse and larger study groups to evaluate the motivation and learning strategies of student nurses in clinical nursing practices.

Ethics Committee Approval: Collection and analysis of these data has received approval from the Manisa Celal Bayar University Faculty of Medicine Health Sciences Ethics Committee (Approval Number: 20.478.486, Date: 18.04.2018).

Informed Consent: Written informed consent was obtained from the nursing students who agreed to take part in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – A.B., F.O.; Design – A.B., F.O.; Supervision – F.O.; Fundings - A.B.; Materials - A.B., F.O.; Data Collection and/or Processing - A.B., F.O.; Analysis and/or Interpretation - A.B., F.O.; Literature Review - A.B., F.O.; Writing - A.B., F.O.; Critical Review - A.B., F.O.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

References

1. Valiga TM. Nursing education trends: future implications and predictions. *Nurs Clin North Am*. 2012;*47*(4):423-434. [CrossRef]
2. Wong KM. "A design framework for enhancing engagement in student-centered learning: own it, learn it, and share it" by Lee and Hannafin (2016): an international perspective. *Educ Technol Res Dev*. 2021;*69*(1):93-96. [CrossRef]
3. Eilam B, Aharon I. Students' planning in the process of self-regulated learning. *Contemp Educ Psychol*. 2003;*28*(3):304-334. [CrossRef]
4. Panadero E. A review of self-regulated learning: six models and four directions for research. *Front Psychol*. 2017;*8*(422):422. [CrossRef]
5. Zimmerman BJ. Self-regulated learning and academic achievement: an overview. *Educ Psychol*. 1990;*25*(1):3-17. [CrossRef]
6. Whittaker AA. Effects of team-based learning on self-regulated online learning. *Int J Nurs Educ Scholarsh*. 2015;*12*(1):45-54. [CrossRef]
7. Bramucci A, *Self Regulated LearningTheories and Potential Applications in Didactics*. I-Tutor; 2013:1-22.
8. Effeney G, Carroll A, Bahr N. Self-regulated learning: key strategies and their sources in a sample of adolescent males. *Aust J Educ Dev Psychol*. 2013;*13*:58-74.
9. Greene JA, Azevedo R. A theoretical review of Winne and Hadwin's model of self-regulated learning: new perspectives and directions. *Rev Educ Res*. 2007;*77*(3):334-372. [CrossRef]
10. Pintrich PR. The role of goal orientation in self-regulated learning. In: *Handbook of Self-Regulation*. 2000:451-529. [CrossRef]
11. Broadbent J, Poon WL. Self-regulated learning strategies & academic achievement in online higher education learning environments: a systematic review. *Internet High Educ*. 2015;*27*:1-13. [CrossRef]
12. Weinstein CE, Meyer DK. Cognitive learning strategies and college teaching. *New Dir Teach Learn*. 1991;*1991*(45):15-26. [CrossRef]
13. Aydın S, Atalay T. *Öz-Düzenlemeli Öğrenme*. 2nd ed. Ankara:Pegem Akademi; 2015.
14. Sardareh SA, Saaf MRM, Boroomand R. Self-regulated Learning Strategies (SRLS) and academic achievement in pre- university EFL learners. *Procedia Soc Behav Sci*. 2012;*98*:1062-1068.
15. Papleontiou-louca E. The concept and instruction of metacognition. *Teach Dev*. 2003;*7*(1):9-30. [CrossRef]
16. Whitebread D, Coltman P, Pasternak DP, et al. The development of two observational tools for assessing metacognition and self-regulated learning in young children. *Metacognition Learning*. 2009;*4*(1):63-85. [CrossRef]
17. Kuiper RA, Pesut DJ. Promoting cognitive and metacognitive reflective reasoning skills in nursing practice: self-regulated learning theory. *J Adv Nurs*. 2004;*45*(4):381-391. [CrossRef]
18. Kuiper R, Murdock N, Grant N. Thinking strategies of baccalaureate nursing students prompted by self-regulated learning strategies. *J Nurs Educ*. 2010;*49*(8):429-436. [CrossRef]
19. Salamonson Y, Ramjan LM, van den Nieuwenhuizen S, Metcalfe L, Chang S, Everett B. Sense of coherence, self-regulated learning and academic performance in 1st year nursing students: a cluster analysis approach. *Nurse Educ Pract*. 2016;*17*:208-213. [CrossRef]
20. Sanaie N, Vasli P, Sedighi L, Sadeghi B. Comparing the effect of lecture and Jigsaw teaching strategies on the nursing students' self-regulated learning and academic motivation: a quasi-experimental study. *Nurse Educ Today*. 2019;*79*:35-40. [CrossRef]
21. Razak RA, Hua KB. Self regulated learning for developing nursing skills via web-based. *MOJES Malays Online J Educ Sci*. 2013;*1*(1):43-54.
22. Faktör Analizi BŞ. Temel kavramlar ve Ölçek Geliştirmede Kullanımı. *Kuram Uygulamada Eğitim Yönetimi Derg*. 2002;*32*:470-483.
23. Esin M. Örnekleme. In: Erdoğan S, Nahcivan N, Esin M, eds. *Hemşirelikte Araştırma Süreç, Uygulama ve Kritik*. 2nd ed Nobel Tıp Kitabevleri; 2015:167-192.
24. Iyama S, Maeda H. Development of the self-regulated learning scale in clinical nursing practice for nursing students: consideration of its reliability and validity. *Jpn J Nurs Sci*. 2018;*15*(3):226-236. [CrossRef]
25. Şahin E, Erden M. Özyönetimli Öğrenmeye Hazırbulunuşluk Ölçeği'nin (ÖYÖHÖ) Geçerlik ve Güvenirlik Çalışması. *e-Journal New World Sci Acad* 2009;*4*(3):695-706.
26. Davis LL. Instrument review: getting the most from a panel of experts. *Appl Nurs Res*. 1992;*5*(4):194-197. [CrossRef]
27. Çapık C. Geçerlik ve Güvenirlik Çalışmalarında Doğrulayıcı Faktör Analizinin Kullanımı. *Anadolu Hemşirelik Sağlık Bilim Derg*. 2014;*17*(3):196-205. [CrossRef]
28. Erdoğan U, Dönmez B. Adaptation of collective teacher efficacy scale into Turkish: validity and reliability study. *Educ ADM Theor Pract*. 2015;*21*(3):345-366. [CrossRef]
29. Izquierdo I, Olea J, Abad FJ. Exploratory factor analysis in validation studies: uses and recommendations. *Psicothema*. 2014;*26*(3):395-400. [CrossRef]
30. Teke C, Arabacı L. The validity and reliability of positive mental health scale. *Anatol J Psychiatry*. 2018;*19*(1):21-28. [CrossRef]
31. Linacre JM. Investigating rating scale category utility. *J Outcome Meas*. 1999;*3*(2):103-122.
32. Coşansu G. Verilerin analizi ve yorumlanması. In: Erdoğan S, Nahcivan N, Esin M, eds. *Hemşirelikte Araştırma Süreç, Uygulama ve Kritik*. İstanbul: Nobel Tıp Kitabevleri; 2014:237-279.
33. Kayış A. Güvenirlik Analizi (Reliability Analysis). In: Kalaycı Ş., ed. *SPSS Uygulamalı Çok Değişkenli İstatistik Teknikleri*. Ankara: Asil Yayın Dağıtım Ltd. Şti.; 2016:403-419.
34. Kula Kartal S, Geçerlik Kavramnın MD E. Tarihsel Gelişimi ve Güvenirlikte en çok tercih edilen yöntem: Cronbach alfa Katsayısı. *Abant İzzet Baysal Univ Eğitim Fak Derg*. 2016;*16*(4):1865-1879.
35. Şencan H. *Sosyal ve Davranışsal Ölçümlerde Güvenilirlik ve Geçerlilik*. Ankara: Seçkin Yayıncılık; 2005.