The Implication of Positive Reinforcement Strategy in dealing with Disruptive Behaviour in the Classroom: A Scoping Review

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Abstract

The scoping review study was carried out from January 18, 2019, to February 18, 2019, by following the Arksey and O'Malley method of scoping review. An extensive search in the bibliographic databases, PubMed, ERIC, and Google scholar for the gray literature was done. The search was narrowed by a set of inclusion and exclusion criteria. The studies included in the literature search were sort by the PRISMA flow chart. The selected studies address the use of a positive reinforcement strategy to manage disruptive behavior in the classroom. The positive reinforcement strategies identified were praise (41%), feedback (33%), and other classroom management studies (25%). Skinner's operant learning principle has a classroom implication for increasing the likelihood of the desired behavior. The results of the review can be used to implement evidence-based practice and policy regarding improving the desired behavior in the classroom.

Keywords: Behaviorist paradigm, Operant conditioning, disruptive behavior.

Introduction

The problem behavior among the undergraduate and high school children has always been a great challenge for the academic institutions and the parents alike causing a bad impact on society at large. This issue can be solved by encouraging the positive relationships within the institution by creating awareness about the social behavior of the students and the introduction of student-friendly disciplinary codes.[1]

Most of the research on problem behavior is based on the behavior management theory presented by Frederic Skinner.[2] He introduced the concept of reinforcement/operant conditioning to change disruptive or encourage desirable behavior in an individual. Skinner believed that a desirable learning outcome is possible if we can change the learner's behavior.[3] The prevention of problem behavior in an academic institution now has become an educational policy. Skinner's behaviorist theory can guide the teaching practices that ultimately result in the development of a desired behavior and improvement in learning.[3]

A scoping review study **was** carried out on Skinner's theory of operant conditioning for the identification of knowledge gaps and implications of theory to practice. The rationale for the scoping review **was** to guide the policy and practice in managing disruptive behavior in the classroom. Its study aims to make evidence-based recommendations for the pedagogical, organizational, administrative, and instructional policies. It also focuses on tailoring the operant learning strategies to the needs of the learners with difficult behavior on an equitable basis.

Objectives of the Study:
1. To map the literature on educational innovations based on positive reinforcement theory for managing disruptive behavior in the classroom.
2. To find teacher-centered approaches principled on positive reinforcement in counteracting the disruptive behavior in the classroom.

Research Questions:
1. How disruptive behavior in the classroom can be managed by the application of a positive reinforcement strategy?
2. What various teaching strategies are applied for dealing with disruptive behavior in the classroom?

Material & Methods

The scoping review methodology is adapted from the six-staged framework by **Arksey and O'Malley.**[5]
Search Strategy
The search strategy was based on the development of key search terms and their synonyms. The key terms were developed that best describe the research question.
Table 1:

Key Search terms	Synonyms
Positive reinforcement strategy	Positive behavior
Operant conditioning	Skinnerian's operant conditioning
Disruptive behavior in class	Problematic behavior in class
Challenging behavior of students	Attitude problems in students

The databases searched were ERIC, PubMed, and Google Scholar (for gray literature). The search was filtered by considering the published data for the past ten years (2009-2019). Studies conducted on humans and articles published in the English language were considered. Higher education was preferred. A customized search string for every database further narrowed the results. A search on Google with no date restrictions was carried out and only the first five web pages containing the relevant articles were selected.

Eligibility Criteria
Inclusion Criteria:
•   Articles published in the last ten years were included.
•   The scoping review was limited to the change in behavior consequent upon positive reinforcement.
•   The intervention studies aiming to measure the change in behavior.
•   The studies addressing behavior management with reinforcement.
Exclusion Criteria:
•   Articles published in a language other than English were not included.
•   Conference presentations and posters, book reviews, editorials were not included.
•   **The study addressing the disruptive behavior with the diagnosed psychiatric or mental illness or disease was excluded.**
•   The operant conditioning dealing with punishment was not included.

Screening

Level I screening entailed screening of the titles only.

The secondary search terms were used to retrieve the specific data from the databases e.g. terms like disruptive behavior in the classroom, reinforcement strategies, classroom management strategies were used. Although some of the search terms produce irrelevant results those terms were included for the sake of decreasing the chance of eliminating relevant articles.

Level II screening was carried out for the title and abstracts fulfilling the inclusion criteria.

Level III screening was done for full-text article review. The full-text articles that were not available online were obtained through the RIPHAH library and library of **Shifa tamer-e-Millat University (STMU).**

The reference list of articles screened for the final review was manually explored by both authors to find out any other relevant articles addressing the research question.

Citation management

All the included reviews were imported in Mendeley reference manager software and kept within the specific database folders. The duplicate citations were removed at the time of screening.

Data Characterization (Charting the data)

A data extraction form was developed according to the standard review form.[7]

The data extraction form contains some standardized information about the included reviews; details about the author, year of publication, the objective of the study, intervention used for positive reinforcement, and findings relevant to the research query. The authors reviewed the articles and the characteristics of the full-text articles were extracted.

Collating, summarizing and reporting the results

PRISMA flow diagram for relevant study identification and final selection of citations

A total of 657 records were identified in the electronic databases. 15 records were identified through other sources, Google, manual search.   There were 300 duplicate studies and 325 studies were non-relevant. Only 45 articles fulfilled the eligibility criteria, out of which 21 were excluded due to the non-availability of full-text articles. Only 24 full-text articles were reviewed.

The selected work on the behaviorism paradigm is from a diversified education level. The reinforcement strategy has been applied widely in dealing with the children with disabilities to increase the likelihood of desired behavior but such studies did not fulfill the inclusion criteria so all those studies concerned with the management of problem behavior in children with disabilities were excluded.[8,9,10] Some of the non-relevant citations were rejected because the reinforcement strategy was based on social cognitive theory instead of operant conditioning.[11] Some of the citations were about the kindergarten school children.[12]

Although some of the abstracts contain search terms like disruptive behavior, challenging behavior, etc. but they were later on excluded due to non-relevance to the objective of the study.

PRISMA flow diagram for the search strategy

PRISMA flow chart reports the results of the number of articles/reports/reviews searched, selected, screened, and finally reviewed for analysis.
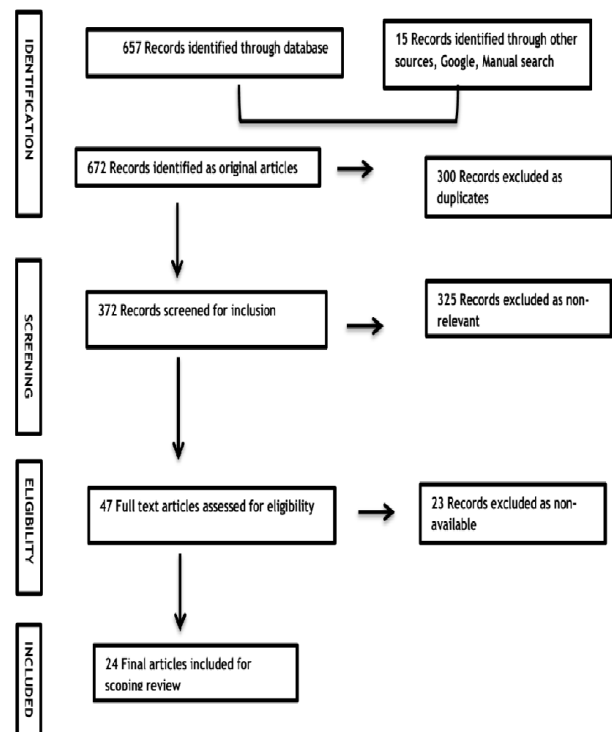

Figure 1:

General characteristics of the included literature:
- The quantitative analysis of the data showed the number and percentage of the included reviews.
- The general characteristics of the available publications include the type of publication, year of publication, target population, sector, or level of education.

Table 1:

	Number (n)	% age
Publication type		
Review	2	8%
thesis	1	4%
Guideline	1	4%
Original research article	20	83%
Year of Publication		
2010-15	10	41%
2016-19	14	69%
Target population		
Teachers	18	75%
Students	6	25%
Education level		
Primary	6	25%
High school	16	66%
General	2	18%

Journal articles form a major contribution to the scoping review. This shows an increase in the interest of research on behavior therapy to deal with the problem behavior.

An explicit definition of Skinnerian operant conditioning and positive reinforcement strategy was mentioned in the introduction of 83% journal articles and a thesis on behaviorism. The rationale of the majority of the selected data for scoping review is to use the positive reinforcement strategy for classroom management and to decrease the problematic behavior events in the class and use of reinforcement contingencies to improve the academic achievements among the students.

The general perceptions of the included studies (75%) state that teachers have to adopt positive reinforcement strategies to increase the likelihood of desired behavior in students. Most of these studies have addressed the classroom instructional reinforcement strategies that impact the relationship between students and teachers which in turn decreases the incidences of problem behavior in the students. Most of the studies compare data gathered from students and teachers and record the outcome behaviors of students in response to reinforcement strategies adopted by the teachers.[13, 14,15,16,17]

Methodological characteristics of included reviews
Databases: The databases were searched with the selected search terms, 75% of the included reviews were retrieved from the databases, 16% from gray literature and Google search engine, and only 8% were selected from the reference list of the selected articles.

Table 2:

	Number (n)	% age
Search strategy		
Databases	18	75%
Internet search engines (Google)	4	16%
Reference list of selected articles	2	8%
Keywords used		
Disruptive behavior	12	50%
Challenging behavior	6	25%
Problem behavior	6	25%
Reinforcement strategies/themes identified		
Praise	10	41%
Feedback	8	33%
Classroom management strategies	6	25%
Research methodology (data analysis)		
Interviews & Questionnaires	21	87%
Guidelines	1	4%
Literature review	2	8%

Analysis/synthesis of data:
The data was analyzed descriptively owing to different study designs, study population, barriers, and inhibitors mentioned in the included studies. The same features in each study included in the review were summarized. The studies were grouped according to study design population and outcome measure. The different patterns across the included studies were identified by tabulating the results by study design, risk of bias, or results, and any other additional information.

Results

The study designs of the included in the scoping review were quantitative, qualitative mixed-methods, systematic review, and descriptive surveys. The authors thoroughly read the articles to perform thematic analysis of the data.[5] The main concept of the study was identified by open coding and categories and their related subcategories were decided by axial coding to give a precise explanation to generate themes and subthemes.[5]

The strategies that are developed with an underlying principle of operant conditioning found in the literature were (1) Praise (2), Positive or constructive

feedback (3), Different classroom management strategies. (4) Role of faculty in managing the disruptive behavior

Discussion

This scoping review study is carried out to map a body of evidence on the role of operant conditioning in dealing with disruptive behavior in the classroom. The scoping review is to provide an opportunity to identify key concepts, gaps in the research, and evidence to inform practice, policymaking, and research.

The Skinnerian programmed instruction is based on the operant learning technique by descriptive behaviorism for the development of the desired behavior.[18]

The following key strategies have been identified by this scoping review study that helps in dealing with disruptive behavior in class.

   I.   Praise as a positive reinforcement strategy.
   II.   Constructive feedback to overcome disruptive behavior.
   III. Classroom management strategies to address disruptive behavior.
   IV.   Role of faculty in managing disruptive behavior.

I-Praise as a positive reinforcement strategy
The data regarding the strategies based on the operant conditioning principle used praise[19] as an effective strategy for bringing desirable behavior and motivating the students' learning. The teacher can use praise to manipulate the learning environment to increase or decrease certain behaviors in the class. The Behavior-Specific Praise (BSP) acts as a positive reinforcement strategy that states that students can only value the praise if it is specific and can help to recognize their efforts and achievements and encourage them on task-relevant behavior.[20]

A teacher's praise is considered as a social reinforcement strategy and a positive behavioral intervention to motivate the students and motivate the struggling students to improve their self-efficacy.[21] The frequent use of praise and opportunities to respond (OTR) are considered as preventive measures to decrease disruptive behavior and promote appropriate behavior in the class. The opportunities to respond help students to express their concerns.[22]

II-Constructive feedback to overcome disruptive behavior
Another important positive reinforcement strategy in overcoming disruptive behavior is feedback.[23] Timely, thorough, and constructive feedback can be used as a

positive reinforcement strategy for students for motivating low efficacy students. It also decreases the incidences of disruptive behavior in class.[24]

Task-specific feedback to the learner cultivates a culture of self-regulated learning.[25] The effectiveness of feedback as a reinforcement strategy immediately after the behavior or task will give a chance of self-reflection and recognition of strengths and weaknesses.

III-Classroom management strategies to address disruptive behavior
There are different classroom management strategies based on Skinnerian instructional design; Class-wide function-related Intervention teams' program (CW-FIT) using structured reinforcement contingencies[26], (rewarding good behavior, promoting a group activity, promoting trust, choices and consequences among the students). Another classroom management strategy is a pre-correction strategy where the expected behavior is determined and the learning environment is adjusted to achieve the desired behavior. Students are provided with strong reinforcement to engage in the expected behavior.[27]

Training the teachers for handling disputes with students should be made part of the faculty development program and curriculum. If the curriculum promotes inquiry-based learning relevant to the real-life experiences then the students will be more inclined to attend the class and it will minimize the problematic behavior arising out of skipping class.[28]

IV-Role of faculty in managing the disruptive behavior
There is also a need for teachers' training to manage problem behavior in the class. A behaviorist approach is a teacher-centered approach where a teacher manipulates the environment that can affect the cognitive, psychosocial, and motivational upbringing of the student.[29,30] A good role modeling can develop a positive motivation in the students to achieve the desired outcome behavior.[31]

The teachers should be trained via workshops showing success stories for personal and professional development to bring a change in their behavior as well.[32]

The classroom instruction reinforcement strategies in the form of tangible items and token money necessitate that the administration should allocate budget for this reinforcement policy in the institution.[33]

The studies also advocate that the parents should be taken on board along with teachers in reinforcement programs for the academic success of the student with problem behavior.[34,35] This will cause the learner to

remain under surveillance both at home and in school. The individualized plan should be formulated for students with extremely challenging behavior.[36]

Negative reinforcement is the removal of the pleasant stimulus to bring a desired change in the behavior.[37, 38]

Conclusion

Skinner's operant learning principle has a classroom implication for increasing the likelihood of the desired behavior. Simply praising the student builds up self-efficacy and motivates them to learn. The results of the review can be used to implement evidence-based practice and policy.

Limitations of the Study

The scoping review study could not address the broad fields addressing the operant conditioning like operating management systems, positive reinforcement strategies for persons with mental disabilities leading to challenging behavior.

Challenges

Selection of topic, data collection, and analysis offered a challenge in decision making. The scarcity of resources was another challenge.

Recommendations

The scoping review study has come up with the following recommendations to inform the policy and practice:

• Teachers should be well equipped with the pedagogical content knowledge and skills for behavior modification; positive reinforcement strategies in the classroom e.g. praise and immediate feedback etc.

• A reinforcement schedule should be set up for those with extremely disruptive behavior.

• An institutional policy of adequate feedback should be introduced.

• Pedagogical instructional methods should be modified according to the need of the disruptive student.

• The students, faculty, and department chair should make teachers' evaluations at the end of every module. Teachers should be rewarded in the form of remuneration to get the best educational outcome.

Consistent feedback and rewards will reinforce all the segments of the education system.

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