

Review

The use of contingency contracting in educational settings: A review of the literature

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Respecting individual differences among students and meeting their unique needs may be one of the greatest challenges faced by teachers. When having a heterogeneous group of students, teachers need to consider a variety of instructional methods. The literature details a large number of teaching strategies supported by research findings, and the purpose of this review is to add to the literature by highlighting important information obtained from research on contingency contracting. This information includes the steps for creating and implementing contingency contracting, types of students with whom it can be used, and types of skills and behaviors that can be targeted. The review results show that contingency contracting is an easy-to-implement strategy that can be effectively used to teach both academic and non-academic skills to students with different characteristics. The results also suggest several practical implications for teachers and several areas of research that need further investigation.

Key words: Contingency contracting, behavioral contracts, special education, students with disabilities.

INTRODUCTION

Perhaps the main intent of schooling is to help students gain thorough knowledge of the curriculum. This knowledge is transmitted to students through different instructional techniques and strategies. Hundreds of instructional techniques have been discussed in the literature; however, there has been a strong emphasis on differentiated instruction to meet individual needs of all students (Mastropieri and Scruggs, 2010; Tomlinson et al., 2003). Differentiated instruction involves making modifications to different aspects of teaching, including teaching methods, to ensure that every student masters The targeted skills regardless of the student's unique

characteristics (Tomlinson et al., 2003).

In addition to recommending the use of differentiated instruction, the literature lays particular stress on enhancing student participation, monitoring student performance, and providing immediate feedback. In fact, general and special education research revealed that these components are of fundamental importance to keep students active, attentive, and motivated and help teachers check understanding and ensure high rates of success (Archer and Hughes, 2011).

One instructional strategy that facilitates the incorporation of these elements into teaching practices

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and that can be used to address individual needs of students is contingency contracting, also referred to as behavioral contracting. According to Cooper et al. (2007), contingency contracting is a document that is written and agreed upon by two individuals. This document (that is, the contract) specifies individuals involved in the contract, tasks assigned to each individual, rewards that will be given to the student, and conditions for receiving the rewards. Every person involved in the contract should have the opportunity to review, negotiate, and agree upon the content of the contract (Maag, 2004). Appendix A Table 1 shows a contingency contract that includes all necessary components.

Several theoretical explanations and practical implications support the use of contingency contracts. First, a student who is involved in the contract verbally states and writes the condition in which the completion of a specific task leads to a reward. Receiving the reward is usually delayed, and this delay can help the student self-monitor the targeted behavior to receive the reward. Second, because contingency contracts are reviewed and renegotiated on a regular basis, they help students remain on task (Cooper et al., 2007). Moreover, because contingency contracting enables students to play an active role in developing the contracts, it may allow for teaching skills related to self-determination, which in turn promotes student participation and adherence to the behaviors indicated in the contract (Alwahbi and Hua, 2020; Maag, 2004).

Not until the late sixties did researchers start evaluating the effect of contingency contracting (Cantrell et al., 1969; Walker and Shea, 1984). At that time, most of the research was done with clients attending counseling and therapeutic settings to help them adhere to treatments and therapies for physical and behavioral conditions, such as being overweight, smoking, drug abuse, and alcoholism (Janz et al., 1984). The positive results obtained in medical research led to the use of contingency contracting in other fields including education. Cantrell et al. (1969) did one of the first studies that focused on the use of contingency contracts with students. The purpose of the study was to determine the impact of home-school contingency contracts on improving student academic behavior such as completing homework, participating in classroom activities, getting on the school bus, and staying in class. Cantrell et al. (1969) stated that the contracts resulted in a considerable improvement in the students' behavior.

Since then, educational research on contingency contracting has expanded to include students without disabilities and students with special needs. Despite the large amount of research conducted to evaluate the effects of behavioral contracting on improving student performance and academic achievement, a few, if any, literature reviews have been done to highlight significant findings indicated in related studies (Bowman-Perrott et al., 2015). Therefore, the purpose of this narrative review

of the literature on contingency contracting was to address different areas pertaining to the use of contingency contracting with students without and with disabilities. The research questions that guided the review were as follows:

- (1) What were the characteristics of the students who participated in the contingency contracting studies?
- (2) What were the skills and behaviors that were targeted in the studies?
- (3) What were the effects of contingency contracting on the students?
- (4) What were the steps for creating contingency contracts?

METHODOLOGY

The current paper is a narrative, comprehensive review of the literature on the use of contingency contracting in education. Therefore, a comprehensive search was conducted across a range of databases and search engines (*ERIC*, *PsycINFO*, *Google Scholar*, and the *Saudi Digital Library*) to locate and identify scholarly articles. With these search engines, different combinations of terms were used such as *contingency contracting*, *behavioral contracting*, *behavior contracts*, *general education*, *special education*, *students without disabilities*, and *students with disabilities*. In order to make the search more precise, I narrowed it by using *AND* and by limiting the results to peer-reviewed articles. In addition, a hand and online search of secondary sources addressing contingency contracting, such as books and informally published articles, was conducted to identify additional studies that did not appear in the databases and search engines. The search conducted in this step yielded a large number of references for scholarly articles.

However, the studies reviewed in this paper were chosen based on the following criteria. First, contingency contracting had to be the primary intervention used in the study. Second, the sample had to include school-age students. Third, the procedure and what the participants did during the study had to be explained in detail. The searches based on these criteria resulted in a total of 32 studies to be reviewed in this paper. The following section provides information about the use of behavioral contracting with general education students and students with disabilities.

RESULTS

The use of contingency contracting with students without disabilities

As mentioned earlier, Cantrell et al. (1969) did one of the first studies that evaluated the effect of contingency contracts on students. The purpose of the study was to determine the impact of home-school contingency contracts on improving student academic behavior such as completing homework, participating in classroom activities, getting on the school bus, and staying in class. Cantrell et al. (1969) stated that the contracts resulted in a considerable improvement in the students' behavior.

Since then, educational research on contingency contracting has expanded to include students without

Table 1. Studies about the use of contingency contracting with students without disabilities.

Reference ^a	Participants ^b	Setting	Intervention procedure	Outcome variables	Results
Allen et al. (1993)	3 (gender NR ^c); 2 nd and 3 rd grade	Regular school	Individually developed, teacher-student contracts	On-task behavior	Positive
Arwood et al. (1974)	4 (gender NR); 9 th grade	Regular school	Classroom-wide contracts developed based on students' opinions about tasks and rewards	On-task behavior social interaction	Mixed ^d
Besalel-Azrin et al. (1977)	8 males; 2 females; 10-12 years old	Regular school	Classroom-wide contracts developed based on students' opinions about tasks and rewards	Adherence to classroom rules	Positive
Cantrell et al. (1969)	(Number of participants NR); (gender NS); 1 st to 7 th grade	Regular school Home	Individually developed, teacher-student and parent-child contracts	School-related behavior at home	Positive
Kelley and Stokes (1982)	12 males; 1 female; 16-21 years old	Vocational training facility	Individually developed, teacher-student contracts	Homework completion	Positive
Kelley and Stokes (1984)	7 males; 1 female; 16-21 years old	Vocational training facility	Individually developed, teacher-student contracts	Studying for exams	Positive
Kidd and Saudargas (1988)	1 female; 1 male; 6 th and 3 rd grade	Regular school	Individually developed, teacher-student contracts	Percentage of math problem completed correctly	Positive
Kieffer and Goh (1981)	48 (Gender NR); elementary school	Regular school	Individually developed, teacher-student contracts	Motivation to take tests	Positive
Martini-scully et al. (2000)	2 females; 8 years old	Regular school	Individually developed, teacher-student contracts	Challenging behavior	Positive
Miller and Kelley (1994)	2 females; 2 males; 9-11 years old	Home	Individually developed, parent-child contracts	Homework completion	Mixed
Navarro et al. (2007)	3 males; 8-14 years old	Regular school	Individually developed, teacher-student contracts	Challenging behavior	Positive
Self-Brown and Mathews (2003)	18 (gender NR); 4 th grade	Regular school	Individually developed, researcher-student contracts	Math skills	Positive
Sheridan and Deering (2009)	1 male; 12 years old	Residential home	Individually developed, teacher-student contracts	Aggression, safety behavior	Positive
Smith (1994)	8 males; 4 females; k-7 th grade	Regular school Home	Individually developed, teacher-student and parent-child contracts	School-related behavior at home, parent-teacher communication	Positive
Trice (1990)	96 (gender NR); high school	Regular school	Individually developed, school counselor-student contracts	Truancy challenging behavior	Positive
Wahler and Fox (1980)	4 males; 5-8 years old	Home	Individually developed, parent-child contracts	Oppositional behavior aggression rule violating	Mixed
Welch (1985)	1 male; 16 years old	Home	Individually developed parent-child contracts	Temper curfew regulations	Mixed
Williams and Anandam, (1973)	(Number of participants NR); (gender NS); 7 th grade	Regular school	Classroom-wide contracts developed based on students' opinions about tasks and rewards	Social and academic behaviors	Positive
Williams et al. (1972)	4 (gender NR); high school	Regular school	Classroom-wide contracts developed based on students' opinions about tasks and rewards	On-task behavior; social interactions; challenging behaviors	Positive

^aStudies are listed in alphabetical order. ^bBased on the information available, chronological age, grade, or school level is reported to indicate students' ages. ^cNR= not reported. ^dMixed results are those indicating the intervention was not effective for some of the participants or some of the outcome variables.

disabilities and students with special needs. Research on the use of contingency contracts with students without disabilities has involved participants attending different types of educational settings, of different ages, and from different backgrounds (see Table 1 for information about the studies). Regular public schools were the settings where contingency contracts were

implemented in the vast amount of this research (Allen et al., 1993; Arwood et al., 1974; Trice, 1990).

The intervention in other studies took place at vocational and educational training facilities for high-school students who dropped out of school (Kelley and Stokes, 1982, 1984), a parochial school (Williams et al., 1972), a special residential

home (Sheridan and Deering, 2009), and students' homes (Miller and Kelley, 1994; Wahler and Fox, 1980; Welch, 1985). The participants in the studies ranged in age from 5 to 21 years and came from varied academic, family, and social backgrounds.

The researchers of these studies focused on different academic, social, and behavioral

outcomes. Academic behaviors targeted in some of the studies included on-task academic behavior (Allen et al., 1993; Arwood et al., 1974; Williams et al., 1972), homework and assignment completion (Cantrell et al., 1969; Kelley and Stokes, 1982; Miller and Kelley, 1994; Smith, 1994; Williams and Anandam, 1973), studying for examinations (Kelley and Stokes, 1984), math skills (Kidd and Saudargas, 1988), and setting and working toward academic goals (Self-Brown and Mathews, 2003). Social behaviors included skills related to social interactions such as appropriate social initiations and responses (Arwood et al., 1974). Examples of behavioral outcomes addressed in the studies are truancy (Trice, 1990), disruptive behaviors (loud talking and throwing objects; Martini-scully et al., 2000; Navarro et al., 2007), non-compliance (Wahler and Fox, 1980; Welch, 1985), and aggression (Sheridan and Deering, 2009; Wilkinson, 2003). In addition to these behaviors, two studies focused on students' motivation and parent-teacher interaction and communication (Kieffer and Goh, 1981; Smith, 1994). The focus of one study was on safety behavior such as using a seatbelt and on property destruction (Sheridan and Deering, 2009).

The development of the interventions in the studies included all components and procedures of creating a contingency contract (Appendix B; Walker and Shea, 1984). All involved parties (the contractors and students) negotiated and agreed upon the tasks and rewards and signed written contracts. The procedures of developing a contract in the majority of the studies (Allen et al., 1993; Cantrell et al., 1969; Trice, 1990) included having a teacher, parent, or school counselor individually negotiates the tasks and reward with the students. In three studies (Arwood et al., 1974; Besalel-Azrin et al., 1977; Williams et al., 1972), class-wide contingency contracts were developed by having the students attending the same classroom answer surveys or checklists as a means of negotiating the responsibilities indicated in the contracts. These contracts were individually modified for each student, if needed. The researchers of the studies generally focused on the use of rewards as a result of completion of tasks. In four studies, the researchers used punishment techniques such as response cost (Martini-scully et al., 2000; Sheridan and Deering, 2009; Williams and Anandam, 1973), time out (Wahler and Fox, 1980; Welch, 1985), and a loss of recess time or getting extra homework (Kidd and Saudargas, 1988) in combination with reinforcement techniques.

The results obtained in the majority of the studies showed positive outcomes of implementing contingency contracting. Only the authors of four studies reported mixed results; contingency contracting had no effect on some of the participants (Arwood et al., 1974; Miller and Kelley, 1994) or on some behaviors (Wahler and Fox, 1980; Welch, 1985). Some authors (Besalel-Azrin et al., 1977; Navarro et al., 2007; Welch, 1985; Wilkinson, 2003) evaluated the effect of the contracts on

maintenance and found that the participants were able to maintain the behaviors of interest. Several studies included findings about the participants' opinions about the intervention. The students involved in the contracts expressed a high level of satisfaction and happiness regarding contingency contracts as a result of being freely able to negotiate the tasks, rewards, and criteria for receiving the rewards (Besalel-Azrin et al., 1977; Martini-scully et al., 2000). In another study, the authors stated that the students thought the intervention was fair because they were able to choose the reinforcers and the criteria for acceptable performance (Wilkinson, 2003). Parents and teachers were also satisfied and happy with the effectiveness of the intervention and with the ease of implementation (Besalel-Azrin et al., 1977; Martini-scully et al., 2000; Miller and Kelley, 1994; Wilkinson, 2003).

The use of contingency contracting with students with disabilities

A smaller amount of research on contingency contracting for students with disabilities has been done (Table 2). The majority of the authors of this research focused on students with emotional and behavioral disorders (EBD; Allen and Kramer, 1990; Diaddigo and Dickie, 1978; Hess et al., 1990; Newstrom et al., 1999; Ruth, 1996). Fewer researchers included participants with ASD (Alwahbi and Hua, 2020; Fausett, 2014; Hawkins et al., 2011; Mruzek et al., 2007), students with attention deficit and hyperactivity disorders (ADHD; Flood and Wider, 2002; Gurrad et al., 2002), and students with learning disabilities (LD; Grünke, 2019; Grünke and Coeppicus, 2017; Hess et al., 1990; Ruth, 1996). A smaller number of students with intellectual disabilities, communication disorders, and health impairments participated in some of the studies (Fausett, 2014; Hess et al., 1990; Ruth, 1996). All the studies but two took place in inclusive settings. Hawkins et al. (2011) implemented the contingency contracting in a special education school and at the students' homes, and Diaddigo and Dickie (1978) conducted their study at a private residential school. The participants with disabilities ranged in age from 7 to 16 years.

Regarding the students with ASD, the targeted behaviors for which contingency contracting was implemented were following classroom rules (Mruzek et al., 2007), non-compliance, physical aggression, verbal aggression, in-seat behavior, inappropriate interaction behaviors (touching the hair of peers) (Hawkins et al., 2011), social initiations, and responses to social initiations (Alwahbi and Hua, 2020; Fausett, 2014). The outcomes for the other students with disabilities included improving on-task behavior (Flood and Wider, 2002; Gurrad et al., 2002), in-class participation (Gurrad et al., 2002), homework completion (Ruth, 1996), school attendance (Hess et al., 1990; Ruth, 1996), appropriate

Table 2. Studies about the use of contingency contracting with students with disabilities.

Reference ^a	Participants ^b	Setting	Intervention procedure	Outcome variables	Results
Alwahbi and Hua (2020)	3 males; 8-11 years old	Regular school	Contract between the students and the researchers	Social Interactions	Positive
Allen and Kramer (1990)	1 male; 12 years old; EBD	Regular school	An individually developed contract between the student and school consultant	Personal hygiene and grooming	Positive
Diaddigo and Dickie (1978)	1 male; 10 years old; EBD	Private residential school	Contract between the student and teacher	Challenging behavior	Positive
Fausett, 2014	3 males; 1 female; 2 nd - 5 th grade; ID ^c and ASD	Regular school	An individually developed contract between the students and teachers	Social interactions	Mixed ^d
Flood and Wider (2002)	1 male; 11 years old; ADHD	Regular school	An individually developed contract between the student and teacher	Off-task behavior	Positive
Grünke (2019)	1 male; 2 females; 8-9 years old; LD	Regular School	Individually developed contracts between the students and a special educator	Writing skills	Positive
Grünke and Coeppicus (2017)	3 males; 11 years old; LD	Regular School	Individually developed contracts between the students and the researcher	Writing skills	Positive
Gurrad et al (2002)	1 male; 12 years old; ADHD	Regular school	An individually developed contract between the student and teacher	Off-task behavior Participation in class	Positive
Hawkins et al. (2011)	4 males; 8-13 years old; ASD	Special education school Home	Individually developed home-school contracts	Off-task behavior Aggression Antisocial behavior	Mixed
Hess et al. (1990)	10 males; 3 females; LD, EBD, and CD ^e	Regular school	Individually developed contracts between the students and teachers	Truancy	Positive
Mruzek et al. (2007)	2 males; 9 and 10 years old; ASD	Regular school	Contracts between the students and teachers	Adherence to rules of conduct	Positive
Newstrom et al. (1999)	1 male; 9 th grade; EBD	Regular school	An individually developed contract between the student and teacher	Writing skills	Positive
Ruth (1996)	35 males; 8 females; 7-12 years old; EBD, LD, and HI ^f	Regular school	Individually developed contracts between the students, teachers, and psychologists	Academic and behavioral goal setting and achievement	Positive

^aStudies are listed in alphabetical order. ^bBased on the information available, chronological age, grade, or school level is reported to indicate students' ages. ^cID= intellectual disability. ^dMixed results are those indicating the intervention was not effective for some of the participants or some of the outcome variables. ^eCD= communication disorders. ^fHI= health impairment.

social behaviors such as talking calmly and cooperating (Ruth, 1996), writing skills such as using correct capitalization and punctuation (Grünke, 2019; Grünke and Coeppicus, 2017; Newstrom et al., 1999), reducing challenging behaviors (Diaddigo and Dickie, 1978), and personal hygiene and grooming habits such as combing hair and washing hands (Allen and Kramer, 1990).

The procedures for creating contingency contracts for students with disabilities were similar to those done for typically developing students.

However, the procedures used to develop the contracts, especially for students with ASD, were more specific in terms of the components of the contracts. Mruzek et al. (2007), for example, conducted a functional assessment and interviewed the students with ASD, their parents, and their teachers to determine the targeted tasks assigned to the students and to choose preferred rewards. Hawkins et al. (2011) developed both school and school-home contracts for the students with ASD to maximize the effect of the intervention and to facilitate generalization. Fausett

(2014) added other components to the contingency contracting to help students remember the tasks by having the students engage in modeling and imitation sessions with their teachers to practice their social skills and by having them watch a short video regularly that showed the students negotiating the contracts. In the other studies involving students with disabilities, the contracts were developed individually with each student and involved teachers and school psychologists in addition to the students. However, due to the high number of

participants, Ruth (1996) did not have them all negotiate the contracts, and Hess et al. (1990) used checklists to determine the reinforcers for the students. In two studies, the researchers combined contingency contracting with group consultation (Hess et al., 1990) and with functional communication training (Flood and Wider, 2002).

The majority of the studies showed that contingency contracting was effective in promoting outcomes of interest. However, Hawkins et al. (2011) and Fausett (2014) reported mixed results. In particular, teacher-student contracts were not effective for some of the students with ASD in these studies, but after adding school-home contracts (Hawkins et al., 2011) and modeling and imitation sessions (Fausett, 2014), the contracts did have an effect on the students' behaviors. Only one study (Fausett, 2014) included information on the students' ability to maintain the skills acquired, and the study showed that the contracts had a positive impact on maintenance.

DISCUSSION

A large number of instructional techniques have been outlined and discussed in the literature. A significant aspect teachers should focus on when they teach is to consider what scientific research has revealed about the effectiveness of these techniques. The purpose of this review was to provide information found in research about the use of contingency contracting in educational settings. Thirty Two research studies were reviewed in this paper to give a broad outline of this instructional strategy to help teachers and researchers be aware of the steps for creating contingency contracts, students who may benefit from them, skills that can be addressed, and the effects of contingency contracting.

The results obtained in this review showed that contingency contracting can be effectively used in different educational settings and with students with different demographics and characteristics. Contingency contracts were used in public (Fausett, 2014; Trice, 1990), private (Diaddigo and Dickie, 1978), and home schools (Sheridan and Deering, 2009), and they were created for students with different characteristics. The students who participated in the study were from the 5 to 21 age range and were receiving general or special education. The students came from a wide range of academic, social, and ethnic backgrounds.

The results also showed that contingency contracting can be used to teach a variety of skills, including academic (Grünke, 2019) and non-academic (Smith, 1994) skills, or to manage different student behaviors (Navarro et al., 2007). The vast majority of the studies indicated that contingency contracting was effective in addressing the targeted skills and behaviors. However, the results obtained in this review about the use of contingency contracting with students with disabilities

were consistent with those reported in Bowman-Perrott's et al. (2015) meta-analysis, which showed combining contingency contracting with other interventions or adding another component to contracts can enhance the effectiveness of the intervention for students with disabilities (Fausett, 2014).

The findings of this review could have important implications for teachers and researchers. First, involving students in any intervention and having them take part in designing the intervention could enhance student motivation as the review results revealed that both teachers and students found satisfaction in implementing the contracts. Second, greater outcomes were found in studies in which contingency contracting was implemented in different settings (home and school). Therefore, involving students' parents, friends, or siblings in the contract can promote the effectiveness of the intervention. Third, the studies that included participants with disabilities suggest the use of contingency contracts alongside other interventions and implement them as a treatment package.

Despite the findings of this review, there are some limitations that should be considered. First, this is a comprehensive review that included a large number of studies that met a very few criteria. Therefore, the data obtained in the studies should be interpreted with caution because some of the studies, as indicated by the authors of the studies, were conducted with a low level of experimental rigor (Hawkins et al., 2011). This lack of experimental rigor may limit the conclusions about the findings. Second, the majority of the studies did not report information about the treatment fidelity or reliability of the data although they are key factors that should be considered to determine whether an intervention is effective (Smith et al., 2007).

In spite of these limitations, there is a need for research to update the literature on using contingency contracting in education as most of the studies were published decades ago. Moreover, further research is needed to evaluate the effect of using contingency contracting with students with disability categories other than those reported in the review such as students with hearing impairment and visual impairment. Finally, a large number of the studies included in this review did not address the effect of contingency contracting on students' ability to maintain and generalize targeted skills and behaviors. Therefore, future research on contingency contracting should focus on generalization and maintenance, given the importance of these aspects in applied settings.

Conclusion

When having a diverse group of students, teachers may need to use different instructional strategies to meet the individual and unique needs of the students. Contingency

contracting is an efficient strategy that has been shown to be effective. Research has revealed that contingency contracting can be used with students with different learning characteristics and abilities. In addition, research has revealed the effectiveness of contingency contracting in improving a wide range of academic and social behaviors and has supported the use of contingency contracting in different settings such as public schools, private schools, and homes.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Appendix A

Table 1. An example of contingency contracts.

Contract									
Task	Reward								
This section includes information about who is responsible for completing the task, the task description, and criteria for acceptable performance, in addition to date on which the contract is signed and the student's signature.	This section includes information about who is responsible for providing the reward, the reward description, and criteria for receiving the contracts, in addition to date on which the contract is signed and the teacher's signature.								
This is an agreement between (student's name) and (teacher's name). The contract begins on (/ /) and ends on (/ /). It will be reviewed every day and renegotiated every week.									
Task completion									
1	2	3	4	5	6	7	8	9	10

Appendix B

Steps of creating contingency contracts

1. Building up and maintain a good rapport with the student.
2. Explaining the purpose of the meeting.
3. Explaining the meaning of a contract.
4. Providing examples of a contract.
5. Discussing the task that the student is going to complete.
6. Making an agreement on the task.
7. Discussing possible rewards with the student.
8. Discussing the criteria for receiving the reward.
9. Discussing when the reward will be given to the student.
10. Agreeing on a date to review and renegotiate the contract.
11. Giving the student a hard copy of the contract and having the student read it aloud.
12. The teacher and student give verbal affirmation.
13. The teacher and student sign the contract.
14. Congratulating the student for signing the contract and motivating the student to do the task.