

How Can Financial Incentives Improve the Success of Disadvantaged College Students? Insights from the Social Sciences

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I. Introduction

Achievement gaps among college students from different social class, racial, or ethnic backgrounds are a persistent, ubiquitous problem in the United States (Bowen, Kurzweil, & Tobin, 2005; Steele, 2010). Low-income, first-generation, or underrepresented racial or ethnic minority students receive lower grades, take longer to graduate, and drop out at higher rates than their high-income, continuing-generation, or White and Asian counterparts (Pascarella et al., 2004; Sirin, 2005).¹ Because these underperforming students face an additional set of obstacles on the path to academic success, we refer to them as *disadvantaged* and to their higher performing peers as *advantaged*. Specifically, disadvantaged students tend to enter college with fewer academic skills (Pascarella, Pierson, Wolniak, & Terenzini, 2004; Warburton, Bugarin, & Nuñez, 2001) and financial resources (Walpole, 2003). They are also more likely to confront prejudice or negative stereotypes about their group (Croizet & Claire, 1998; Steele & Aronson, 1995) and to lack the “rules of the game” for achieving success as a college student (Bourdieu & Passeron, 1977; Bourdieu & Wacquant, 1992; Carter, 2003; Lareau, 1987; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). These additional challenges often contribute to underperformance and can prevent students from fully realizing their potential (Stephens, Markus, & Fryberg, 2012; Steele, 2010). Efforts to reduce achievement gaps must therefore address these obstacles.

This chapter examines one increasingly popular strategy for reducing achievement gaps: the use of financial incentives. In particular, we focus on the question of how to structure and implement financial incentive programs to maximize chances of improving disadvantaged students’ success in college. To answer this question, we integrate behavioral insights from the

¹ The term *first-generation* refers to students who have neither parent with a four-year college degree. The term *continuing-generation* refers to students who have at least one parent with a four-year college degree. In college settings, *underrepresented racial minorities* include African American, Latino, and Native American students.

social sciences with research in psychology, organizational behavior, and education. While we focus on financial incentives, many of the principles we discuss here are also relevant to non-financial incentives.

This discussion of using financial incentives to reduce achievement gaps is consistent with standard economic analyses, which indicate that people change their behavior when the benefits associated with that behavior change. However, understanding how to best design financial incentives and the circumstances in which they are most likely to be effective also requires behavioral insights from the social sciences. For example, the way that an incentive program is framed or the particular rewards to which incentives are tied (e.g., a plane ticket to visit family versus cash) can alter the effectiveness of the program. In order for incentives to most effectively improve the performance of disadvantaged college students, they must not only meet the baseline preconditions we discuss below, but also address the particular obstacles that disadvantaged students frequently confront in school.

In the next section, we draw on previous literature to describe some general baseline preconditions that should be taken into account in order for incentives to have a chance of serving as effective tools for producing long-term, self-sustaining behavioral change. We next consider whether financial incentives have the potential to narrow achievement gaps by helping disadvantaged students improve their academic performance. Specifically, we describe each of the specific challenges often faced by this population, and examine whether and how incentives might be used to help these students overcome them. In doing so, we acknowledge that financial incentives are well equipped to address some obstacles but fall short in remedying others. Finally, in the final section, we discuss open questions that future research should address.

II. Can Financial Incentives Effectively Change Behavior?

We define financial incentives as the offer of a monetary reward or an item that students would otherwise have to purchase themselves in exchange for engaging in a desired behavior or accomplishing a particular goal. For example, if taking an advanced placement (AP) test is the desired behavior, then a financial incentive could be paying students \$50 to take the test, waiving the fee that students would normally pay to take the test, or purchasing study materials to help them master the test subjects. A common assumption is that financial incentives are a powerful motivating force, and that people work or study harder, faster, or smarter *because* they are rewarded for doing so. Following this logic, people should be more motivated and perform better academically when incentives are present compared to when they are absent.

The organizational behavior, psychology, and education literature on the effectiveness of incentives, however, is rife with controversy and mixed in its conclusions. What is clear is that incentives work to enhance performance under some conditions and not others (for reviews of this literature, see Akin-Little et al., 2004; Cameron & Pierce, 2002; Condy, Clark, & Stolovitch, 2003; Jenkins, Mitra, Gupta, & Shaw, 1998; Lepper & Greene, 1978; Lepper, Greene, & Nisbett, 1973). When deciding whether to use incentives and how to maximize their chances of changing behavior, practitioners should therefore consider a host of situational and individual factors that inform how the targeted audience is likely to understand and respond to the incentives. In the

inset below, we outline these baseline preconditions that guide whether and to what degree incentives will be effective.

Baseline Preconditions for Incentives to Be Effective

People must have the following:

- Skills or knowledge required to complete the incentivized behavior
- Resources (e.g., financial) and opportunities to complete the incentivized behavior

Incentives should accomplish the following:

- Target behaviors that would otherwise not occur (i.e., when students are not intrinsically motivated)
- Focus on short-term and concrete behaviors
- Take into account the level of quality at which the task is completed
- Be used repeatedly over time (not just on one occasion)
- Be delivered immediately after the incentivized behavior occurs and be concretely tied to that behavior
- Be made meaningful to the intended population (e.g., appropriate for a given age, role, social class, culture, etc.)

These insights can be fruitfully applied to programs designed to improve the performance of disadvantaged college students. Indeed, many programs have achieved the desired behavioral changes or academic outcomes (e.g., Patel & Richburg-Hayes, 2012), which suggests their potential to be effective. For example, Brock and Richburg-Hayes (2006) found that performance-based scholarships increased community college students' GPAs and progress toward degree completion. Similarly, Pallais (2009) found that a large merit-based scholarship program in Tennessee improved high school achievement (i.e., higher test scores). Additionally, Jackson's (2010) assessment of the Advanced Placement Incentive Program (APIP) found that providing financial incentives to high school students for high scores on AP exams improved not only their exam scores but also their rates of college attendance and college performance.

However, not all financial incentive programs have achieved this degree of success. For example, in a series of randomized experiments that paid students for academic achievement (e.g., money for a good grade on a test), Fryer (2011) found that short-term financial incentives

did not reliably improve students' performance. Even in the context of a successful program, their effects may be short-lived. Scott-Clayton (2011) evaluated the success of a merit scholarship program in West Virginia, which provides free tuition and fees to college students who maintain a minimum GPA and course load. The scholarship program increased BA completion rates and the number of credits that students completed during their first three years of college. However, the effect on credits disappeared during the last year, when students no longer faced the minimum requirements to renew the scholarship.

These mixed findings suggest that financial incentives have the *potential* to improve the academic performance of disadvantaged college students when they are used properly. In the section that follows, we discuss how to tailor incentives to address the particular obstacles that disadvantaged students are likely to face.

III. Academic Skills

One obstacle that many disadvantaged college students confront is a lack of necessary academic skills. Low-income students, who are frequently first-generation and racial or ethnic minorities, are more likely to attend lower-quality, less academically rigorous high schools than high-income students (Alon, 2009; Bastedo & Jaquette, 2011; Carnevale & Rose, 2004; Pascarella et al., 2004; Warburton et al., 2001). When we use the term *low-income*, we refer to students whose family incomes are below the U.S. poverty line (e.g., \$22,350 for a family of four in 2011; Federal Register, 2011). Even if these disadvantaged students make full use of every opportunity to learn and develop skills at their high schools (e.g., AP classes), they still are likely to enter college lacking some academic skills needed to perform up to their potential (Credé & Kuncel, 2008; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004; Choy, 2001).

Whether students have the skills needed for academic success is an important factor that may help explain the variation in the effectiveness of previous incentive programs. For example, Jackson's (2010) study of APIP suggests that the program's success resulted not only from providing incentives for high scores on AP exams, but also ensuring that students had the academic skills necessary to master material in AP classes and subsequently pass their exams. This program began as early as the seventh grade and used teams of teachers spanning different grade levels. The teams designed and implemented curricula to prepare students to learn the relevant material before they were eligible to register for AP courses and exams.

In contrast, a lack of academic skills may be one reason why Fryer found that paying middle and high school students for earning better grades did not reliably improve their performance. Indeed, across the four major cities in which he conducted the studies, Fryer did not find significant differences between the performance of students who were paid and those who were not. Although the incentives were motivating and generated enthusiasm among students who wanted to receive money for strong academic performance, follow-up interviews demonstrated that many students simply did not understand how to improve their academic performance (e.g., studying more, asking teachers for help). In other words, the incentive program did not meet the precondition that people have the skills or knowledge required to complete the incentivized behavior.

Can incentives help disadvantaged students improve their academic performance? To achieve this goal, incentives must be tied to activities that will develop the academic skills students need to fulfill their potential (see Jenkins et al., 1998). For example, if an incentive program seeks to improve the grades of disadvantaged students who have poor math skills, then practitioners should first identify the concrete behaviors that will likely improve or undermine math skills in that particular educational setting (e.g., grade level). Then, incentives should encourage the specific behaviors needed to improve math skills and discourage those that inhibit their development. Perhaps students could be incentivized for short-term academic behaviors, such as meeting with a teacher outside of class for tutoring or paying attention in math class, rather than for the long-term goal of improving their math grades. When students lack the academic skills needed to improve their grades, incentives should encourage the types of academic activities that produce better grades.

IV. Financial Resources

Many disadvantaged students, particularly those from low-income backgrounds, face the obstacle of limited access to the financial resources needed to succeed in college. This resource gap is important to address because financial aid can improve students' college persistence and completion rates (Dynarski, 2008; Brock & Richburg-Hayes, 2006; Scott-Clayton, 2011). Indeed, a lack of financial resources can undermine academic performance through different processes (Paulsen & St. John, 2002; Cabrera, Nora, & Castaneda, 1992). Students with fewer resources often need to work multiple jobs to pay for their college tuition and living expenses, and, as a result, have less time to devote to their academic studies and social activities (Stinebrickner & Stinebrickner, 2003; Walpole, 2003; Ehrenberg & Sherman, 1987). Having less time to spend on one's classes can lead to lower grades (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; George, Dixon, Stansal, Gelb, & Pheri, 2008) and spending less time with peers may hinder students' cognitive development (Pascarella et al., 2004). Resource constraints may also prevent students from fully participating in the college experience (e.g., extracurricular activities), which could detract from their sense of belonging (Bohnert, Aikins, & Edidin, 2007) and undermine their academic performance (cf., Walton & Cohen, 2007).

Can incentives bridge the gaps in financial resources between low- and high-income students? Existing need-based financial aid programs are often designed to do just that. We believe that additional incentive programs have the potential to help financially disadvantaged students in two ways. First, incentives could directly bridge the gap by providing disadvantaged students with additional financial resources beyond the usual need-based financial aid (Henry & Rubenstein, 2002). Students could earn additional financial aid, for instance, by engaging in behaviors that will improve their grades (e.g., attending class, getting extra tutoring). Alternatively, students who already have the necessary academic skills could be required to attain a certain GPA to maintain their current levels of financial aid.

Second, incentives could mitigate some of the *consequences* of the financial resource gap. Due to a lack of financial resources, many students are not able to fully participate in the social and extracurricular activities central to the learning, growth, and overall development that the college experience can initiate (e.g., student clubs, sororities/fraternities, meals with friends). As a result, students may have difficulty finding a group of friends or a sense of community, and

question whether they belong. Targeted financial incentives (i.e., incentives tied to a particular purpose) could be far more effective than general financial aid. For example, targeted incentives could encourage students to prioritize participating in extracurricular activities that might otherwise be unavailable to them. Although such incentives would not directly improve academic performance, they could do so indirectly by enhancing students' psychological experience of belonging in college (cf., Ostrove & Long, 2007; Walton & Cohen, 2007).

V. Cultural Capital

Many disadvantaged students, particularly those who are first-generation, lack the middle-class cultural capital or "rules of the game" for effectively navigating college settings (Horvat, Weininger, & Lareau, 2003; Lareau, 1987). Without college-educated parents, first-generation students are unlikely to have had family discussions about what it means to attend college or what students need to do to be successful there. As a result, these students may be less certain than continuing-generation students about how to choose a major, plan their class schedules, interact with professors, and select a future career (cf., Calarco, 2011; Kim & Sax, 2009).

In addition, many first-generation students have less familiarity with the cultural norms institutionalized in university settings than their continuing-generation peers. Specifically, U.S. universities tend to promote largely middle-class cultural norms and expectations for students (Fryberg & Markus, 2007; Greenfield, 1994; Kim, 2002; Li, 2003; Stephens, Fryberg, & Markus, 2012). Universities often ask students to pave their own path, express themselves, work independently, and challenge the status quo. These messages are consistent with the norms held by many continuing-generation students, who have been socialized in mostly middle-class contexts. However, first-generation students, who have been socialized in mostly working-class contexts, often experience these cultural norms as a "cultural mismatch" or as a sign that they do not fit in college settings. This cultural mismatch often guides first-generation students' behavior and can diminish their sense of comfort, render academic tasks difficult, and undermine their academic performance (Stephens, et al., 2012; Stephens, Townsend, Markus, & Phillips, 2012).

Can incentives provide disadvantaged students with the experience of a "cultural match" that they need to improve their performance in college? Unfortunately, we believe that incentives are poorly equipped to address this obstacle. While it might be possible to incentivize first-generation students to learn how to enact the middle-class behaviors expected of them in college, doing so might only highlight the cultural mismatch between such behaviors and the norms common in their working-class backgrounds (see Stephens et al., 2012). Although financial incentives are unlikely to directly reduce the cultural obstacles that students often experience, incentive programs can be improved if they take disadvantaged students' particular cultural backgrounds into account.

A growing body of research in social psychology indicates that tailoring incentives to students' cultures, selves, or identities will render the incentives more effective in producing the desired changes in behavior (Oyserman, 2009; Oyserman & Destin, 2010; Oyserman, Fryberg, & Yoder, 2007; Stephens, Markus, & Fryberg, 2012; Walton & Cohen, 2007). Incentives can be made relevant by considering how students understand who they are (e.g., racial or ethnic

identity) and why they behave as they do (e.g., why they want a college degree). One strategy would be to offer targeted incentives that provide what students in a given cultural context care about the most, rather than offering an equivalent amount of money that is not tied to a particular purpose. For example, if students were concerned about whether they could afford to visit their families over the holidays, then buying them plane tickets as an incentive for completing a certain number of credits should be more motivating than cash or a check. Another strategy is to frame incentives in a way that reflects students' values, motives, and concerns. For example, if a group of students views a college degree as a tool to give back to family or community, then the incentives could take that motive into account. An incentive program might be named "Building Blocks for Better Communities," which frames education as a route to contributing to community, instead of "Building Blocks for Academic Excellence," which frames education as a route to academic accomplishments.

Framing incentive programs in a culture-specific way would certainly require additional time and attention on the part of program developers and administrators, but could well make an important difference in their effectiveness.² Additionally, to avoid stereotyping the targeted student population, practitioners would need to learn more about the concerns, interests, and motives of the particular population with whom they are working.

VI. Social Identity Threat, Prejudice, and Discrimination

Many first-generation, low-income, and racial/ethnic minority students also confront negative attitudes about their group (i.e., prejudice/stereotypes) or negative group-based treatment (i.e., discrimination; Croizet & Claire, 1998; Johnson, Richeson, & Finkel, 2011; Steele & Aronson, 1995). Although many students learn how to cope with these experiences, research reveals that chronic exposure to stereotypes, prejudice, and discrimination detracts from students' identification with and sense of belonging in the context of higher education (see Steele, 2010). As mentioned above, practitioners could use incentives to indirectly enhance students' experience by encouraging behaviors that foster belonging (e.g., participating in extracurricular activities). Thus, while financial incentives may indirectly help disadvantaged students to overcome some of the downstream consequences of negative stereotyping, prejudice, and discrimination, they are poorly equipped to directly address the obstacles themselves.

Can financial incentives help reduce the prevalence of negative stereotypes, prejudice, and discrimination faced by disadvantaged students in college and university settings? One strategy might be to incentivize advantaged students to behave in nonprejudiced ways toward outgroup members. Student groups such as sororities or fraternities could be incentivized to take concrete steps toward building a culture of tolerance and inclusion (e.g., sponsor events that increase understanding of cultural differences). This approach, however, presents at least two

² Framing incentives in a culture-specific way does not require taking into account every possible source of cultural variation but rather requires attention to broad, overarching differences that occur along the lines of independence—e.g., prioritizing the individual over relationships—and interdependence—e.g., prioritizing family, community, and relationships over the individual. Research suggests that this independent-interdependent divide is the primary driver of cultural clashes between groups or between individuals and institutions, and that taking this divide into account can go a long way toward making incentives meaningful to the targeted population (Markus & Conner, 2013).

key problems. First, incentivizing inclusion is unlikely to be effective against the most common forms of prejudice, which are implicit and operate outside individuals' awareness and control (Greenwald & Banaji, 1995; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). Second, a strategy that is not properly framed as a positive step toward improving the campus climate, rather than as a "prejudice-reducing" incentive program, could backfire. For example, if such a program fuels the perception that prejudice is a major issue on campus, the program could have the paradoxical consequence of amplifying, rather than mitigating, prejudice's pernicious effects. To avoid some of these potential pitfalls, an effective alternative could incentivize behaviors that are known to reduce prejudice and thereby improve intergroup relations. Colleges and universities could incentivize students to participate in community centers or other activities on campus in which students from diverse social groups are likely to interact. Research shows that these types of intergroup interactions have potential to reduce prejudice when the right conditions are in place (i.e., members of different groups are of equal status and share a common goal; Allport, 1954; Page-Gould, Mendoza-Denton, & Tropp, 2008; Pettigrew & Tropp, 2006).

VII. Motivation

In addition to the previously mentioned obstacles that face disadvantaged students, lack of motivation can prevent all students from reaching their full academic potential. For example, at certain times in college (e.g., the so-called "sophomore slump"), all students may lack the motivation to do the work required to perform well in their classes or to fulfill academic requirements needed to earn a degree and graduate on time. Although disadvantaged students may also lack motivation, this obstacle does not exceed that faced by advantaged students (Steele, 2010). If anything, disadvantaged students who have overcome additional hurdles to make it to college are likely to have demonstrated higher levels of motivation and persistence (cf., Chen & Miller, 2012).

Can incentives help to increase the motivation of disadvantaged students in college and university settings? Research suggests that financial incentives can be effective at increasing motivation if used in the right circumstances. They could be used when students are otherwise unable to focus on the long-term goal of obtaining good grades and do the work necessary to ensure their academic success (Cameron, 2001). Practitioners should design incentives to encourage activities that would not occur in the absence of incentives (Deci, 1975; Lepper, Greene, & Nisbett, 1973). For example, if attending office hours is known to improve exam performance, and teachers observe that students do not often take advantage of this opportunity, then incentive programs could encourage students to attend office hours on a regular basis. Incentives could also be used to increase performance-enhancing behaviors at key times, such as during the sophomore slump, when students are typically less engaged.

While incentives can be effective when used in the right circumstances, they also can backfire without careful consideration of *why* people behave as they do (Ariely, 2008; Bowles, 2009). If incentives encourage activities that people are motivated to do for other reasons (e.g., being a good student), they can undermine motivation and decrease the likelihood that people will engage in the incentivized behavior in the future (Greene & Lepper, 1974; Greene, Sternberg, & Lepper, 1976; Lepper, Greene, & Nisbett, 1973). For example, many people donate blood because they want to see themselves or to be seen by others as a charitable person.

Likewise, many parents pick up their children from school on time because they want to be responsible parents. As a result, paying people to donate blood or to pick up their children on time could lead people to believe that they engage in those activities *because* they are being paid to do so. Ultimately, this new understanding of the reason for one's behavior could undermine people's motivation and actually reduce blood donation rates (Mellström & Johannesson, 2008) and increase the number of late parents (Gneezy & Rustichini, 2000). Extending the same logic to academic performance, financial incentives could undermine students' motivation by leading them to believe that they engage in academic activities (e.g., read books) *because* they are rewarded for doing so, rather than for the intrinsic enjoyment or because they aspire to be hard-working students.

Along the same lines, it is important to consider what providing an incentive for academic performance might unintentionally communicate to disadvantaged students about how other people perceive them or their groups. Incentivizing disadvantaged students for earning better grades might promote the negative stereotype that disadvantaged students do not perform as well as other students because they are simply lazy or unmotivated. This understanding could increase social identity threat and further undermine, rather than enhance, the performance of disadvantaged groups (see Steele, 2010).

VIII. Open Questions

Several questions remain about the best ways to use incentives to reduce or eliminate achievement gaps between disadvantaged and advantaged students.

Incentivizing Professors and Teaching Assistants

Most of the strategies described above focus on improving disadvantaged students' academic performance by changing their behavior. Examining the problem with a broader view of the contextual factors that contribute to students' performance might include the teachers and mentors whose behavior also has a significant impact. Can providing incentives to professors or teaching assistants improve the performance of disadvantaged college students? Professors and teaching assistants are a good place to start because they typically have the resources and skills to help students to improve their academic performance. The literature examining the effects of incentivizing teachers is mixed in its conclusions. While some research suggests that teacher incentives are not effective (e.g., Fryer, 2011; Springer et al., 2011), other studies demonstrate that they can be effective if they incorporate behavioral insights. The studies that suggest teacher incentives are ineffective have offered teachers financial incentives for students' performance at the end of the school year. In contrast, incorporating the idea that losses are felt more deeply than equivalent gains, Fryer and colleagues (2012) gave elementary school teachers in Chicago a cash incentive at the beginning of the school year and asked them to return the money at the end of the year if their students performed below average. They found that disadvantaged students significantly increased their average math scores. Such a program could also be effective among university professors.

Applying the principles outlined above for developing students' academic skills, we suggest that effective incentive programs for professors and teaching assistants might similarly

reward them for concrete, specific behaviors that are known to improve students' performance rather than for students' performance itself. For example, incentivizing professors to mentor disadvantaged students may not only help improve students' academic skills, but also help students feel more connected to the academic community, increase their sense of belonging, and acquire important cultural capital. Such financial incentives may be particularly effective in large, research-focused universities where the current incentive structure is not fully aligned with helping disadvantaged students, who may require more time and effort than their advantaged peers. Institutions might consider allowing professors to reduce their teaching obligations in exchange for their participation in mentorship programs for disadvantaged students.

Additional Strategies for Reducing Achievement Gaps

In addition to the various forms of financial incentives we have discussed, non-financial incentives (i.e., rewards that cost little or no money) may also help reduce the achievement gap between advantaged and disadvantaged students. Providing students with public recognition, such as being on a dean's list for achieving a desired outcome, may increase motivation or bolster disadvantaged students' feelings of belonging in college. However, to be effective, such non-financial incentives would also need to address the specific obstacles faced by disadvantaged students.

Finally, it is important to acknowledge that financial incentives are poorly equipped to address some of the important psychological obstacles that many disadvantaged students face in college, including the experience of a cultural mismatch, a lack of belonging, and social identity threat, prejudice, or discrimination. We suggest that the best way to equip students to overcome these obstacles is a multistrategy approach that incorporates incentives along with other appropriate psychological tools. In particular, a growing intervention literature in social psychology provides a number of useful strategies (Wilson, 2011; Yeager & Walton, 2011). Some of these interventions improve students' academic outcomes and foster belonging by encouraging them to reinterpret their adversity or difficult experiences (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Cohen, Garcia, Apfel, & Master, 2006; Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Walton & Cohen, 2011), while others focus on increasing students' understanding of the source of their particular obstacles and equipping them with culture-specific strategies for success (Johns, Schmader, & Martens, 2005; Stephens, Hamedani, & Destin, 2014).

Conclusion

Financial incentives provide a useful tool that can be leveraged to improve the performance of disadvantaged groups and reduce achievement gaps. However, like any tool designed to change behavior, incentives will be far more effective if they fully and carefully consider the context in which they are delivered and the population that they seek to target. In order to produce the desired long-term, self-sustaining behavioral change, policy-makers and practitioners must first take into account the preconditions required for students to have the opportunity to change their behavior. They must ensure that students have the academic skills and financial resources necessary to complete the desired behaviors. Further, effective incentive programs must address the particular obstacles that disadvantaged students frequently confront in higher education. They should be designed to promote people's sense of belonging in academic

contexts, include people's culture-specific understandings of their behavior, and highlight what is most meaningful and motivating to them.

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