

Assessment of Internet Learning for High School Students

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Abstract

The generally poor academic performance of secondary school students across the United States is motivating educators to discover ways to improve school conditions of learning. Because the main source of knowledge is the Internet, helping students know how to use this tool wisely and relate their searching to cooperative learning group assignments is a focus of instructional concern. The purpose of this study was to determine how to improve Internet learning at a single high school. The principal chose to use student voice as the method and invited all students to take the Internet Learning Poll to find out how they felt about learning from the Internet. They were told that taking the poll was voluntary, not an assignment, their responses would be anonymous, and combined with other students. Of 461 students enrolled, 444 took the poll, yielding a school completion rate of 96%. Students wanted to be taught methods to improve their Internet research skills and how to evaluate website credibility. They maintained that teachers needed training to devise assignments which contribute to Internet searching and problem-solving practice in cooperative learning teams. Student polling presents evidence-based data to identify needs of students and contribute to better school practices. The elements used to establish the goals of continuous school improvement planning can be met by focusing on faculty improvement, student voice, and principal leadership.

Keywords: cooperative learning, Internet learning, high school students, student voice, student polling, teacher training

1. Introduction

1.1 Introduction to the Problem

International achievement testing results have shown that students in the United States score below many other countries (Organisation for Economic Co-operation and Development, 2022). Disappointing results from national student testing also have confirmed the need to assign greater attention to the problem of academic progress (National Center for Education Statistics, 2022).

Janet Godwin (2022), CEO of ACT (American College Testing), has provided further predictive evidence about unacceptable student performance. ACT scores for the high school class of 2022 declined to the lowest level in more than 30 years. Subscores declined in all four of the benchmarks (English, Mathematics, Science, and Reading) used to predict student success during the first year of college. Godwin reported, "This is the fifth consecutive year of declines in average scores, a worrisome trend that began long before the disruption of the COVID-19 pandemic and has persisted." She recommended establishing student academic recovery as a national priority.

1.2 Importance of the Problem

This article explores how polling students can identify problems related to conditions of learning at their school and actualize opportunities for Internet productivity. Student polling results can be utilized by schools to meet their institutional goals for continuous improvement.

1.3 Literature Review

1.3.1 Utilize New Learning Tools

Grant (2021) warned that it is shortsighted to suppose students are able on their own to figure out what they need to know about the Internet. The title of his book is *Think Again: The power of knowing what you don't know*.

Educating adolescents for today's schools requires a different set of tools and strategies than were relied on in the past. The contemporary orientation recognizes that digital tools can encourage students to question, challenge, and disagree, thereby increasing their potential to become critical thinkers. Hertz (2019) pointed out that Internet learning requires students to read, decide what is true and false, search for data, discover new ways of looking at things, interpret situations and events, and interact with cooperative learning teammates to solve problems together.

The teaching tradition has been to depend on linear-type tools as the single method for students to acquire understanding. Linear learning, when applied to reading, means always beginning at the front page of a book, journal or magazine article and continuing until the last page is read. Hari (2022) indicated that Internet learning is often non-sequential and interactive, permitting users to surf the net and select links that connect to social networks or blogs to communicate with others who have similar interests. Jackson (2018) pointed out that students also learn from chatting with peers, writing messages, and downloading materials related to a lesson theme. Levine (2020) agreed that this more comprehensive form of information processing (linear and non-sequential) can accommodate some differences among students in their pace of learning and benefits of exposure to visual enhancement.

1.3.2 Encourage Student Discovery and Self-Direction

Before the Internet, when teachers were the main source of information, it was appropriate for them to focus on conveying lessons students were expected to memorize. Roy (2019) stated that students still expect their teachers to plan instruction, develop and organize online searches, be available to listen, and provide advice. However, adolescents want to locate and learn some things on their own rather than always being told and gaining their knowledge secondhand. Cleese (2020) suggested that an Internet orientation for students should include the discovery of knowledge to supplement instruction provided by teachers. Kim and Maloney (2020) recognized that student interest in discovery means that learning based on personal motivation and experience brings greater meaning and more readily transfers to daily life situations than when ideas and concepts are only conveyed by direct instruction.

1.3.3 Combine Internet Learning with Cooperative Learning

Johnson and Johnson (2017, 2022) identified an important change for teacher education. They recommended that the Internet offers exciting opportunities for learning in cooperative groups and recognizes the student responsibility to share knowledge with peers. Instead of students thinking of group discussions as a chance to express personal opinions, a more suitable outlook should be that every member of a team share ideas and resources they have found on the Internet. Having students read only from a text or material a teacher assigns is no longer reasonable. Greater potential benefits can be gained from Internet learning because it relates to both individual and group motivation. Johnson, Johnson, Roseth, and Shin (2014) determined that cooperative learning in school can enhance intrinsic motivation and achievement through peer support and encouragement.

1.3.4 Support, Search, Synthesis, and Individuality

Robinson and Aronica (2015) suggested one aspect of orientation requires possibilities for students to practice the mental processes of synthesis, combining multiple points of view into a coherent summary. This can be accomplished by having each team member complete the same assignment to visit a specific website or read the same materials and then write a paragraph to summarize content. Slavin and Madden (2022) recommended that students critique teammate presentations, identify how their descriptions differ, note aspects some students captured better than others, and detect relevant elements not mentioned by anyone. Synthesizing ideas, interpreting thoughts of others accurately, and being able to express personal reactions in an easily understood way supports collaboration.

Sayegh and Rigopoulos (2022) indicated that seeing connections and elaborating concepts is an important asset that calls for building on the ideas of others, expanding the scope of cooperative learning, and identifying practical implications. Sharing the perspectives of individuals by networking can solve problems in more efficient ways in less time than working alone. Carr (2020) stated that schools should place greater emphasis on students learning how to locate information, merge data, and synthesize educational material as a basis for being able to reach more informed decisions. Students who are able to find information, organize it and present results in a rational manner offer credible evidence of their problem-solving abilities.

1.3.5 Valuing Intrinsic Motivation

Intrinsic motivation can guide student learning in response to personal curiosity rather than having to be directed by someone else. Dede and Richards (2020) explained that previous generations were inclined to look at life as divided in two stages. During the growing up stage, students attended school, learned the skills necessary to get a

job, and spent their adult years going to work. In contrast, new knowledge is being generated at a more rapid rate than ever before. Hertz (2019) acknowledged that the conditions necessary to actualize intrinsic motivation are not fully understood but the hope is that creative innovation will make this achievement possible.

Alexander (2022) documented how the acceleration of new information has motivated businesses to invest more money on the education of employees than is spent by all American higher education institutions combined. Goldberg (2018) urged students to recognize that the duration of knowledge relevance from any education program will diminish over time due to rapid change.

1.3.6 Student Voice Movement

Adults have historically been recognized as the authorities about most things of value. For this reason, teachers and parents have been expected to provide guidance for adolescents without any corresponding responsibility to learn from adolescents. But things have changed. The *student voice movement* has gained international prominence and is recognized as an important consideration for shaping school reform. According to Brasof and Levitan (2022), the common goals for student voice are to make known educational aspirations of youth, propose ways to improve instruction, and advocate for equity and diversity. School superintendents Lubelfeld, Polyak, and Caposey (2018) speculated that one possible reason schools have failed to innovate is because student opinions about quality of their education have not been given attention.

Kahne et al., (2022) examined the relationship between responsiveness of schools to student voice and academic performance. Schools where students felt they were listened to about classroom practices reported higher grades, better attendance, and lower rates of chronic absenteeism. International researchers are agreed that student opinions about instruction, relevance of curriculum, tutoring, teacher development, and Internet learning opportunities deserve increased attention for school improvement (Conner, 2022; Cook-Sather, 2020; Jones & Bubb, 2021; Mayes, Black, & Finneran, 2021; Messiou et al., 2022; P. S. Strom, R. D. Strom, Sindel-Arrington, & Wang, 2022).

1.3.7 Significance of Demographics

Katz and Rideout (2021) conducted a national survey that identified significant inequities among families in access to the Internet. Rural and economically disadvantaged students were found least likely to have broadband that brings high speed Internet. Congress recognized the digital divide was an enormous challenge. Lieberman (2021) and Rauf (2021) reported the implications of Congressional legislation allocating \$7 billion to school districts for increasing Internet connections for schools and families. Drescher, Podolsky, Reardon, and Torrance (2022) pointed out this effort was helpful although the Internet access issue still remains in many rural areas. Rural students collectively represent 20% of the public school enrollment in the United States.

1.3.8 Origins of Student Polling and Field Test

How can schools determine what student think about quality of their education and ways it can be improved? R. D. Strom and P. S. Strom (2002) recommended that student polling should focus on perceptions about conditions of learning, barriers to academic achievement, and answers to common problems; "Knowing how students feel about particular process and events at school would not obligate the faculty or board of education to modify policies. However, it would lead to greater awareness and therefore more informed decisions" (p. 190-191). Development of student conditions of learning polls began by convening student focus groups at several secondary schools to identify topics they felt would be relevant for polling. Based on these topics, Strom and Strom constructed ten online polls; each poll focused on a separate condition of learning. The selected topics included school stress, career exploration, time management, attention and distraction, tutoring, peer support, cheating, frustration, cyberbullying, and Internet learning. Each poll consists of 15 to 20 multiple-choice items with an open-end 'other' fill-in type response for answers not provided by the stated options. With approval from each school principal, secondary school students were invited as experts about the student experience to examine drafts of the polls. The student obligations were to judge relevance of each poll, ease of understanding items, and suitability of response options. Based on student feedback, some polls were revised, then re-examined, and checked for difficulty level by applying the Flesh-Kincaid Readability Index (P. S. Strom, R. D. Strom, & Wing, 2008).

The field-test by Wing (2007) examined the online student polling process and methods to convey quick results to principals; this study was approved by the Institutional Review Board and school principals. Three polls (Internet, tutoring, and time management) were administered to 2,575 students from eight rural secondary schools (grades 7 to 12) in the southern region of United States. Each principal sent a letter to parents explaining the faculty interest in learning student views for school improvement. Teachers brought students to the computer lab where they were given password-protected entry data to access each poll including a school code, and an individual code. This

method guaranteed student anonymity and that the participants took the poll only once. On completion of the polling period, each principal was given an executive summary for their school that included participant poll responses and separate breakdowns by grade, gender, and ethnicity (Strom et al., 2008). All eight secondary schools reported student poll completion rates of 75% or higher. Feedback included student observations stated for each item under the 'other' option.

1.3.9 Quantitative and Qualitative Analyses of the Field Test

Quantitative analyses used Chi-square for the responses on most items. Each response was tested because students could choose more than a single option as their response for most items; therefore, each response had a separate data field. The purpose for the analysis was to assess whether relationships were dependent or independent between responses and the variables of gender, grade, ethnicity and school location. The same tests were also performed between responses and specific schools to detect significant differences between student perceptions from school to school (Wing, 2007).

A comparison of percentages of 2,575 student responses were examined for dependent relationships to the four tested variables. Sixty-nine percent of all the student responses showed a dependent relationship with one or more of the demographic variables. Overall, the school location variable recorded the highest response relationship (46%), followed by gender (35%), and grade level (23%); ethnicity recorded the lowest number of significant relationships at 17%. These findings support the conclusion that student polling should focus on one school only where results should be applied and contribute to improvement specifically at that school (Strom et al., 2008; Wing, 2007).

Qualitative evaluation occurred six weeks after online reports were disseminated to each of the eight school principals. Interviews were held with each principal at their school (Wing, 2007). The importance of the principal is to oversee the polling process, use results for school improvement, and assess the value of this method for obtaining student opinion. Subsequent studies have included interview evaluations from principals about how student polling has influenced their school (Strom & Strom, 2016; Strom et al., 2008; Strom, Hendon, Strom, & Wang, 2019). Collectively, they have been united in their views that student polling

- reveals student views more clearly than educator impressions,
- points to methods of learning that are most favorable to students,
- details school assistance needed by students that has been overlooked,
- encourages students by respecting their judgments about school,
- portrays upsets and anxieties that are felt by students at their school,
- identifies teacher shortcomings that indicate needs for faculty training,
- detects student norms of viewpoints related to their concerns,
- enables students to assert their attitudes anonymously,
- motivates learners to realize that student voice can result in favorable influence,
- allows pupils to share their views without fear of a grading penalty,
- establishes a precedent that the school supports differences of opinion,
- illuminates majority views while recognizing diversity in student beliefs,
- considers topics that students value that are outside the existing curricula,
- shows intergenerational evaluation of school reforms that are needed,
- advises schools about students' personal strengths and needs, and
- enriches the school perspective and enables better decisions by educators.

The empirical field-test by Wing (2007) confirmed that polling can be a practical procedure to determine opinions of students, youth are able to identify conditions that warrant consideration for reform, and their views can be merged with judgments of professionals to improve quality of education. Since the field-test, additional poll collaborations have been completed with principals who have requested free access to polls that they selected and free online feedback about views of students at their school (Strom et al., 2019; Strom & Strom, 2016a; Strom, et al., 2022; Strom, Strom, Whitten, & Kraska, 2014).

2. Methods

2.1 Participants

This research study about Internet learning by Hendon (2017) involved students attending a rural high school in the

southern United States. Of 461 students enrolled at the school, 444 decided to complete the Internet poll yielding a completion rate of 96%. Demographics were collected for student age, gender, grade level, and ethnicity. Students ranged from 13 to 19 years old; 224 males (50.45%), and 220 females (49.55%). Students were in grade 9 ($n = 118$, 27%), grade 10 ($n = 113$, 25%), grade 11 ($n = 118$, 27%), and grade 12 ($n = 95$, 21%). They identified themselves as White, ($n = 250$, 56%); Black ($n = 167$, 38%), and other ($n = 27$, 6%).

2.2 Instrumentation

This study was approved by the school principal and the Institutional Review Board (Hendon, 2017). Every student was invited by the school principal to complete the 16-item multiple-choice Internet Learning Poll that would describe their Internet experiences. Results of this poll provided evidence-based data which would be used by the principal and faculty to improve Internet learning for students.

2.3 Procedures

Participants were told that completing the poll was (a) voluntary, (b) not an assignment, (c) their responses would be anonymous and combined with other students' responses at their school, and (d) the purpose was to improve learning conditions for students while using the Internet for school assignments. Paper and pencil format was used by students to complete the anonymous poll with supervision provided by teacher advisors; all responses were then entered manually from paper to the online poll.

2.4 Data Analysis

For each option on every poll item, the number of respondents (n) and percentages (%) were calculated and prepared in tabular form for presentation to the school. The simplicity of reporting results in this way enabled the school principal, teachers, students, and school improvement committee to make evidence-based collaborative decisions about instructional practices and procedures at their school.

3. Results

After completion of the polling period, the principal was provided a full report in table format with data for variables including grade level gender, and ethnicity: an executive summary of results was also presented. Table 1 shows the overall results for the Internet Learning Poll responses of 444 high school students by frequencies and percentages for each of the 16 items.

Table 1. Internet Learning Poll

Poll Item	n	%
Q1. Homework assignments on the Internet		
encourage me to learn independently	123	27.70
provide more information about a topic	178	40.09
allow for practice with research skills	158	35.59
include sharing my learning with peers	52	11.71
other	28	6.31
Q2. The ways my parents can support Internet learning are		
monitoring the websites that I visit	67	15.09
discussing subjects that I find online	89	20.05
assisting me in doing online research	135	30.41
provide computer access at home	213	47.97
other	12	2.70
Q3. Web sites I find most worthwhile contain		
streaming video or audio material	148	33.33
quizzes with corrective feedback	185	41.67
visuals that help organize content	143	32.21
written summaries of the content	74	16.67
other	6	1.35

Q4.	My teachers could use training about how to		
	make assignments involving the Internet	153	34.46
	organize groups to do research searches online	135	30.41
	give parents information about learning on the Internet	55	12.39
	help students understand Internet ethics	142	31.98
	other	16	3.60
Q5.	Virtual schools where students can study from home		
	help responsible students make more progress	166	37.39
	should replace the traditional schedules at school	65	14.64
	would motivate students to be more self-directed	137	30.86
	cannot work for students who lack motivation to learn	144	32.43
	other	10	2.25
Q6.	The main reasons I use the Internet are to		
	locate information for school work	240	54.05
	communicate with network friends such as Facebook	157	35.36
	watch videos on favorite web sites	139	31.31
	download the music I want to hear	101	22.75
	send and receive emails to people	87	19.59
	other	18	4.05
Q7.	The web site of my school could be improved by		
	listing events with schedules and locations	163	36.71
	posting homework assignments for classes	177	39.86
	providing contact information for tutoring	110	24.77
	recognizing students for achievements	110	24.77
	other	13	2.93
Q8.	The ways I learn most subjects best are		
	discussions	170	38.29
	reading	82	18.47
	lectures/demonstrations in class or on videos	166	37.39
	guided practice activities	151	34.01
	other	13	2.93
Q9.	The ways I learn math and science best are		
	discussions	143	32.21
	reading	41	9.23
	lectures/demonstrations in class or on videos	199	44.82
	guided practice activities	171	38.51
	other	19	4.28
Q10.	I wish my school taught me about		
	how to evaluate web site credibility	128	28.83
	methods to improve my research skills	216	48.65
	how to block inappropriate messages	36	8.11
	ways to deal with cyberbullies	48	10.81
	how to use the Internet and cell phone safely and securely	39	8.78
	other	33	7.43

Q11.	To support safety on the Internet, I choose to		
	not reveal any personal information	320	72.07
	ask parents before downloading software	55	12.39
	keep a log of web sites I have visited	40	9.01
	let parents know if I see unsafe materials	58	13.06
	attend a class on computer and cell phone safety and security	40	9.01
	other	14	3.15
Q12.	My homework requires that I use the Internet		
	daily	228	51.35
	weekly	165	37.16
	monthly	26	5.86
	never	25	5.63
Q13.	When doing homework on the Internet		
	I find it difficult to decide what sites to use	215	48.42
	I copy and paste instead of using my own words	56	12.61
	I get distracted	158	35.59
	I cannot identify key words for online searches	53	11.94
	other	38	8.56
Q14.	I like learning from the Internet because it		
	lets me make discoveries on my own	177	39.86
	encourages a global outlook about situations	82	18.47
	helps the teachers to learn from their students	52	11.71
	enables information sharing among students	77	17.34
	allows me to learn at my own pace	191	43.02
	other	22	4.95
Q15.	The amount of time I spend daily on the Internet is		
	less than 1 hour	57	12.84
	1 to 2 hours	97	21.85
	2 to 3 hours	109	24.55
	3 to 5 hours	75	16.89
	more than 5 hours	106	23.87
Q16.	My school can support Internet learning by		
	making the computer lab available evenings and weekends	78	17.57
	Expect cooperative learning teams to explore Internet sites	106	23.87
	permitting students to take some of their courses online	178	40.09
	providing assignments that require the Internet	140	31.53
	other	13	2.93

From "Learning polls for secondary school and college students: Motivation to learn from the Internet Poll," by P. S. Strom & R. D. Strom, 2023. <https://www.learningpolls.org> Copyright © 2016 by P. S. Strom & R. D. Strom.

Note. $N = 444$. Results shown in this table first appeared in K. L. Hendon (2017). *Using polling to understand high school students' perspectives on Internet learning and peer support* (pp. 187-192). [Unpublished doctoral dissertation]. Auburn University. Reprinted with permission.

4. Discussion

4.1 Internet Learning Poll

Students recognized that Internet learning enables individuals to learn at their own pace. The historic quest of teachers has been to find ways to accommodate differences in the rates which students of varying abilities learn. Hertz (2019) maintained that educators who can devise and structure creative tasks for online learning are more able to ensure that the condition of respecting individuality is met. Internet learning was also perceived as beneficial by the students because it enabled them to find new information, encouraged a global outlook on ideas, motivated the practice of sharing knowledge with teammates, and helped teachers learn from students.

4.2 Benefits of Internet Assignments

Students value Internet homework because it increases information on the curriculum topics studied in class, respects independent learning, and supports practice to improve research skills. These substantial contributions should cause more teachers to experiment in developing innovative tasks for individual and team assignments. In describing how often their homework requires going online, most students reported daily or weekly involvement. An often ignored benefit of Internet assignments is that students can learn from one another by sharing what they learn independently online. Unfortunately, only a few students reported that teachers wanted them to share their homework learning with peers. The way that Internet homework assignments are structured at this school would improve if students were accountable to share with teammates what they learned independently online (Strom et al., 2019; Strom & Strom, 2021).

Davidson (2022) documented how the cooperative learning guidelines teachers rely on were originally formulated in the 1970s, well before public access to the Internet. Some of the original cooperative learning procedures and practices have been up-dated to reflect new opportunities that are unique to technology. Group work is more productive when students share materials they find on the Internet with teammates. Similarly, discussions are more beneficial when students feel obligated to refer to reading materials which they discover during self-directed Internet searching. Research by Johnson and Johnson (2017, 2022) supports this broader way of defining achievement is necessary in order that individuals can proceed at their own pace, contribute knowledge to members of their team, and rely less on personal opinion as the source for their comments during group discussion. When the unique learning of individuals is shared with teammates and the classroom teacher, social interdependence becomes more prominent and additional strategies can be devised to support online productive teamwork.

4.3 Develop Internet Research Skills

Search skills are indispensable to support self-directed inquiry online that is productive (P. S. Strom & R. D. Strom, 2016). Findings indicated student confusion centered on how to search for and screen data gathered from the Web. Difficulties were reported in deciding about which websites to explore, and being distracted because irrelevant links caused them to deviate from their topic. Having a hard time deciding on key words to begin a search or refine an advanced inquiry was problematic along with the temptation to plagiarize, copy and paste instead of reporting in their own words what had been learned. One item of the poll invited the students to express their opinion about expansion of the curriculum. The dominant student response was that they needed to be taught about methods to improve research skills, and how to evaluate website credibility. Fink (2020) recommended that students be given sustained instruction about how to build their Internet research skills. Davies (2021) suggested that students should learn about the functions of multiple search engines as well as the specific advantages of each engine.

4.4 Teacher Readiness to Devise Online Assignments

Reports about student academic achievement in the United States have shown lack of student readiness to perform well on reading and mathematics tests, particularly when compared with same-age peers from other countries (National Center for Education Statistics, 2022; Organisation for Economic Co-operation and Development, 2022). Less well understood are concerns of students about teacher readiness to design Internet tasks and arrange projects for teams to work online. Students were united in believing their teachers would gain from more training about devising assignments for using the Internet. Davidson (2022) explained that teacher preparation should orient them to the uniqueness of their role in the Internet age compared to the more limited role of educators in previous generations. Teachers should consider themselves as mentors whose challenge is to devise Internet tasks for students that require self-directed learning as well as building interdependent teamwork skills for cooperative learning.

Students reported their teachers need more education to organize effective Internet team searches. In this context, only a small proportion of the students reported teachers expect them to share with teammates what they learn

independently on the Internet. At this school, students were not generally recognized as sources of learning for peers who could augment teacher instruction. Cleese (2020) reminds us that creative online tasks can broaden group learning, reinforce benefit of data sharing, encourage everyone to improve communication skills, and nurture competencies needed for effective teamwork. Prospective teachers should have extensive training and lots of practice with creative problem solving so they can devise innovative ways to merge direct instruction and learning online.

Alexander (2022) identified a significant shift that is necessary to prepare teachers for their jobs. The Internet has become the major source of information. Consequently, students believe teachers should be proficient in creating practical Internet assignments that support self-directed learning and cooperative endeavors. Roy (2019) and Morris (2019) explained that this fundamental change in the expectations of teachers also applies to in-service training so all educators can equip students with cooperative skills needed for employment.

4.5 Distance Learning and School Scheduling

Students should be acquainted with their opportunities to take external courses. When they can access distance learning, they are able to overcome the limitations of curriculum at their school. Students want the faculty to acknowledge the enormous potential for Internet learning. One way that teachers can become more supportive is to acquaint students with their opportunities to take online courses. When students are able to access external instruction online, they can overcome the limitations of local school offerings, faculty shortages, pursue instruction in areas of personal interest not available at their campus, recapture missed credits, and perhaps graduate early. A wise option is the Florida Virtual School, founded in 1997 as the first statewide Internet-based high school in the United States (Florida Department of Education, 2022). This institution offers a broad K-12 curriculum that is available to students from any state.

Many students in this study complained about lack of Internet access at home and interrupted service. Students expressed a desire that their school computer lab remain open on evenings and weekends. Extending the lab hours would require recruitment and training of community volunteers to maintain the operation and provide security so conditions are conducive to learning and safe if and when school personnel are not present.

4.6 Implications for Principals

Teachers sometimes expressed concern about the environment outside school they are unable to control such as poverty, unsafe neighborhoods, and family instability that puts students at risk for academic failure. In addition, there are educational practices that cause poor performance of students that should be perceived as risks that teachers can control. Lubefeld et al. (2018) recognized that a need to listen to student voice and link Internet learning with the school curriculum. Principals have an important role in changing this situation. They elaborated how motivating faculty to become a collaborative team can improve school effectiveness.

Strom, Strom, Wing, and Beckert (2009, p. 120) identified school-specific challenges that require each principal to assume responsibility to lead faculty discussions about the following questions:

- How can we become more responsive to student motivation for Internet learning?
- How can Internet homework help students learn interdependence by data sharing?
- How can students be taught search skills so they can become self-directed learners?
- How can low-income schools provide evening and weekend access to the Internet?
- How can students be persuaded to bring Internet materials to share during class?
- How can class discussions refer to reading students have discovered on their own?
- How can our school expand curriculum by online learning from external sources?
- How can we improve Internet assignments for individuals and cooperative groups?

5. Limitations and Conclusions

Results of student polling at one school do not apply to other schools. Student polling differs from other methods of gathering data because all respondents are from the same school. This deliberately narrow target for sampling ensures that the outcomes of polls have local relevance that can help stakeholders make decisions about whether to subject some new practices or policies to a trial period before adoption is considered.

The traditional practice of students having a passive role is gradually being left behind. The Internet offers exciting possibilities for educators to support student self-directed learning. Interdependent learning can also be improved by arranging for online cooperative teams to become sources of peer instruction. Being able to take courses online

from another institution is a benefit that should be encouraged for all students. These opportunities depend on taking advantage of technology to prepare students for the broader skill set that employers will expect of newcomers in the workforce.

The Internet is changing public expectations of teachers from being the main source of knowledge to the more complex role of being the guide who supports discovery and promotes teamwork skills. The custom has been for students to work alone on convergent thinking tasks and confirm their comprehension by submitting assignments to the teacher. In this design, students have no opportunity to decide what they will learn on their own or share what has been gained with anyone other than the classroom teacher. High school students polled in this study recommended that their teachers be given further training on methods to create assignments that will support the effectiveness of individuals and team collaboration for classes taken online.

The scope of accountability for students enlarges when they are expected to locate and read Internet materials in addition to those assigned by the teacher. The Internet Learning Poll enabled students to make recommendations to the school improvement committee for consideration about reforming instructional practices. Schools, students, teachers, parents, and the community have the most to gain when student voice is heard, and faculty take action to improve conditions of learning.

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