Collaboration or Cooperation?
Analyzing Group Dynamics and Revision Processes in Wikis

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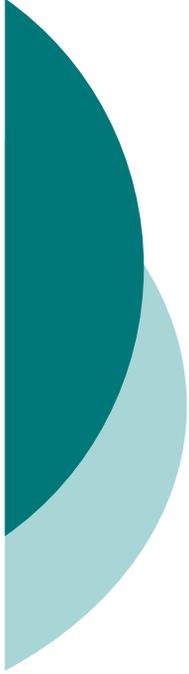
Review of Literature - Wikis (1)

- wikis blur the traditional roles of reader, writer and editor and promotes writing as a social act (Sturm et al., 2009)

- wikis promote collaboration during entire composition process: drafting, editing, reviewing (Ajjan & Hartshorne, 2008; Bradley, Lindstrom, & Rystedt, 2010; Gibbons, 2010; Larusson & Altermann, 2009; Tharp, 2010)

Review of Literature - Wikis (2)

wikis can be used:

- to promote autonomous learning (Kessler, 2009; Kessler & Bikowski, 2010)

- as educational resource (Hughes & Narayan, 2009; O'Shea, Baker, Allen, Curry-Corcoran, & Allen, 2007)

- as a platform for translation work (Miyazoe & Anderson, 2010)

- to produce a brochure for parents (Mak & Coniam, 2008)

- for project-based learning (Evans, n.d.)

- for culture learning (Kessler, 2009; Lund, 2008)

- for developing writing skills (Elola & Oskoz, 2010; Lee, 2010)

Review of Literature - Collaborative Learning

- a dialogic process where learners pool their knowledge and experience to create new meanings (Palincsar, 1998)

- cooperation vs. collaboration (Dillenbourg, Baker, Blaye, & O'Malley, 1996; Haythornthwaite, 2006)
  - Cooperation: some independent work of group members on subtasks, assemble pieces into a larger whole at the end
  - Collaboration: synchronous work of all members on a variety of aspects of the project

Review of Literature - Wiki Composition Process

- "first mover advantage" (Viégas, Wattenberg and Dave, 2004)

- cooperative strategies, hesitation to edit other students' work (Hughes & Narayan, 2009; Mak & Coniam, 2008; Lee, 2010)

- collaborative strategies (Kessler, 2009; Kessler & Bikowski, 2010)

Review of Literature - Group Roles

- roles are "sets of behaviors that are characteristic of persons in a particular social context (Forsyth, 1999)

- informal roles do tend to emerge over time as members perform specific actions or functions (Forsyth, 1999)

- distinction between task, group building/ maintenance and individual roles (Benne and Sheates, 1948, quoted in Hare, 2003)

Methodology (1)

- follow-up study to Arnold, Ducate & Kost, 2009

- Participants:
  - 53 undergraduates in three German classes at three different universities (25+10+18)

- Procedure:
  - create resource with sociohistorical background information for novel *Am kürzeren Ende der Sonnenallee* by Thomas Brussig (2003)
  - small groups worked on one wiki page

Methodology (2)

- Class 1: unstructured approach: groups of 3 students; minimum of 400 words; completed after reading of novel; include references to the novel and the movies; presentation of wiki in class

- Classes 2 & 3: teacher-guided approach; groups of 2-4 students; completed before reading of novel; assignment in steps (annotated bibliography, outline, two drafts, teacher and peer feedback); graded webquest before reading

Research Questions

1. Did students complete the task in a cooperative manner or a truly collaborative manner? In other words, when students made changes to the wiki, did they change only their own writing (cooperation) or that of other group members too (collaboration)?

2. Were formal revisions more successful when students edited their own contributions or those of others?

3. While working on their wiki, did students develop unique task roles?

Data Collection and Analysis

Existenzialismus ~~während~~ während der ~~1940s und 1950s~~ 1940er und 1950er Jahren ~~Wovor die Frage~~ "Wie wurde ein Kind während 1940s und 1950s Existenzialismus betrachten, als es sehr einflussreich war?" Diese Frage ist relativ. Für e... Kind von ~~einem~~ einer religiösen Familie ist Existentializmus eine Drohung, weil der Existenzialismusfortgang während ~~1940s und 1950s~~ der 1940er und 1950er Jahren atheistisch war. Existenzialismus beseitigt die transzendente Gewalt, dass Gott ist. Ein einflussreicher Fortgang mit atheistischen Ideen wi... Existenzialismus ~~werden~~ wird gefährlich für allen Theismus. Aber für andere Leute während ~~1940s und 1950s~~ der 1940er und 1950er Jahren, war Existenzialismus libertarianisch und erfreulich. Existenzialismus behauptet, dass die Welt absurd ist, und Verhalten hat keine ~~Begrenzung~~ Begrenzungen Also Leute mussen Absicht und Bedeutung ihre Leben zu ~~ihren Leben~~ schaffen. Es ist nicht erkoren. Während ~~1940s und 1950s~~ der 1940er und 1950er Jahren haben viele religiöse Gruppen Existentialzmus angegriffen. Zum Beispiel hat ein katholischer Kritiker gesagt, dass Existenzialismus das Lächeln von einem Kind ignoriert, und die Christen ~~hat~~ haben auch gesagt, dass Existenzialismus die zehn Gebote ~~entlassen~~ missbilligen. Existenzialismus hat Gedanken und Ideen organisiert, dass viele Leute immer gefürchtet ~~hätten~~ haben.

Nomen
• Absicht {f}- Purpose
• Begrenzung {f}- Limit
• Drohung {f}- Threat
• Fortgang {m}- Movement
• Gebot {n}- Commandment
• Verhalten {n}- Behavior
Adjektive
• ~~einflussreich- influential • erfreulich- joyous • erkoren- predestined • libertarianisch- liberating Verben •~~ angreifen- to attack
• ~~betrachten- to view~~ einflussreich- influential
• erfreulich- joyous
• erkoren- predestined
• libertarienisch- liberating
Verben
• entlassen- to dismiss

○ archived wiki pages were analyzed for changes

○ each revision was matched to its author and tracked backwards through all archived versions to assess whose text each student had edited

Taxonomy of Revision Types (Arnold, Ducate, & Kost, 2009)

FORMAL CHANGES (SURFACE)	
•*Format* *(image, link, heading)*	Adding, deleting, fixing, or moving of an image, link, and heading
•*Spelling*	"Be**r**schwerde" → "Beschwerde" (successful) "mude" → "m**e**ude" (unsuccessful)
•*Punctuation*	"Ziemlich viele Leute denken dass**,** der Eiserne Vorhang..." → "Ziemlich viele Leute denken**,** dass der Eiserne Vorhang..." (successful)
•*Verbs*	"weil der Krieg ende**t**et" → "weil der Krieg endete" (successful) "viele Leute **hat** gestorben" → "viele Leute **haben** gestorben" (unsuccessful)
•*Nominal/ Adjectival Endings* *(cases, gender)*	"Der Eiserne Vorhang war ein interessant Situation..." → "Der Eiserne Vorhang war ein**e** interessant**e** Situation..." (successful) "Der Eiserne Vorhang ist eine Referenz für **den** Grenze..." → "Der Eiserne Vorhang ist eine Referenz für **der** Grenze..." (unsuccessful)
•*Word Order*	"Der Osten hat vorgetäuscht, dass keine Mauer **gibt es**." → „Der Osten hat vorgetäuscht, dass **es** keine Mauer **gibt**." (successful) "Die Briten haben nicht **wieder** für ihn gestimmt." → "Die Briten haben nicht für ihn **wieder** gestimmt." (unsuccessful)
•*Lexical Revisions*	"Churchill hatte der größten Verdacht Stalin." → "Churchill hatte der größten Verdacht **von** Stalin." (unsuccessful) "Hätten wir die Bomben **tropfen** sollen?" → "Hätten wir die Bomben **abwerfen** sollen?" (successful)
•*Translation*	"Das Geld der Kirche kam von **Donation**." → "Das Geld der Kirche kam von **Spenden**." (successful)

Taxonomy of Revision Types (Arnold, Ducate, & Kost, 2009)

MEANING-PRESERVING CHANGES (STYLISTIC)	
•*Additions*	"Am erste Dezember 1998 hob das GDR (ost Deutschland) Parlament, der Satz, in die GDR Einrichtung welches die SED Gewalt gab auf." →"Am ersten Dezember 1998 hob das DDR Parlament den Satz, **der gesagt hatte** (ADD), das die SED Gewalt aufgab, in die GDR Einrichtung."
•*Deletions*	"Jugendweihe bevor den DDR war eine populäre Feier für **die** Jugendlich," → "Jugendweihe vor die DDR war eine populäre Feier für Jugendlichen," (*die* deleted)
•*Substitutions*	"weil Religion **ist weider eine wichtige Sache zu haben**, aber die Jugendweihe bleibt für viel." → "weil Religion, **wieder wichtig ist**, aber die Jugendweihe bleibt für viel."
•*Reordering*	A word or phrase moved from one part of the text to another
MEANING-DEVELOPING CHANGES	
•*Significant Content Additions*	"Truman hatte auch Verdacht für Stalin, und suchte eine Weise, vor die Sowjetunion nahm dem Krieg gegen Japan teil, dem Krieg zu enden."
•*Significant Content Deletions*	Similar to significant additions, but section is deleted from wiki
•*Factual Correction*	"Hause waren von 1971 bis **1919** gegrundet." → "Hause waren von 1971 bis **1990** gegrundet."

Results - Cooperation vs. Collaboration

- combination of collaborative and cooperative strategies
- 64% of all revisions in students' own writing
- formal revisions: 51% in own writing, 49% in others' texts
- meaning-preserving and meaning-developing revisions: 72% in own writing, 28% in others' texts
- differences between Class 1 and Classes 2+3:
  - Class 1 made 69% formal revisions to others' texts, Classes 2+3 made 61% formal revisions in own texts
  - Class 1 made 64% content revisions to own texts, Classes 2+3 made 82% content revisions to own texts

Results - Success of Formal Revisions

	Formal Edits				Total
	In Author's Own Text		In Others' Text		
	Successful	Unsuccessful	Successful	Unsuccessful	
Class 1	134 (25%)	31 (6%)	297 (56%)	69 (13%)	531
Classes 2 +3	518 (50%)	107 (10%)	287 (28%)	120 (12%)	1032
Total	652 (42%)	138 (9%)	584 (37%)	189 (12%)	1563

Results - Task Roles (1)

○ each student received two labels, one for formal revisions, one for meaning revisions

○ no development of task roles

○ instead: work load roles
  - free rider (<10%)
  - social loafer (less than fair share)
  - team player (fair share)
  - leader (more than fair share)

Results - Task Roles (2)

	Leader		Team Player		Social Loafer		Free Rider	
	formal	meaning	formal	meaning	formal	meaning	formal	meaning
Class 1	8	8	5	6	8	7	4	4
Classes 2+3	8	8	8	8	7	10	5	2
Total	16	16	13	14	15	17	9	6

Discussion - RQ1: Cooperation vs. Collaboration (1)

- more cooperative approach when making changes to content (72% in own, 28% in others' text)
- hesitancy to change another writer's contribution observed in other studies (Arnold, Ducate, & Kost, 2009; Lee, 2010; Lund, 2008; Lund & Smørdal, 2009; Mak & Coniam, 2008; Wheeler, et. al, 2008)
- supports notion of first-mover advantage (Viégas, Wattenberg & Dave, 2004)
- formal revisions more balanced: 51% in own, 49% in others' text --> may point to L2 learner's experience where L2 writing assignments are mainly seen as a way to assess mastery of the linguistic code

Discussion - RQ1: Cooperation vs. Collaboration (2)

o differences between groups:

- Class 1 made 69% formal revisions to others' texts, Classes 2+3 made 61% formal revisions in own texts

- Class 1 more similar to Kessler's (2009) study where students did more peer-editing than self-editing --> maybe due to task design: Class 1 worked in unstructured, more autonomous, approach --> more collaborative; Classes 2+3 received peer and teacher feedback --> focus more on their own writing with regards to formal revisions

- Class 1 was overall a little more positive about the wiki project than Classes 2+3

Discussion - RQ2: Success of Formal Revisions

○ as successful editing others' work (37%) as their own (42%)

○ differences between groups:

- Class 1: 56% (others' text) vs. 25% (own text)

  --> Class 1 had one student who did 40% of all revisions

  --> skewed results; without that student a more balance picture: 39% (others' text) and 37% (own text)

- Classes 2+3: 28% (others' text) vs. 50% (own text):

  --> Those students who received feedback might have felt more personally responsible for their own text and put more effort into making it error free than into revising their group members' texts

Discussion - RQ3: Task Roles (1)

○ students did not focus their language-related revisions on particular formal aspects (e.g., spelling, verb conjugation)

○ data shows varying levels of engagement in wiki project:

- 11% of participants were labeled "free riders" because they did less than 10% of the group's content work
- different to Kessler & Bikowski's (2010) study in which 55% of participants only contributed once to their wiki
- group size!

Discussion - RQ3: Task Roles (2)

- 12 students showed a low level of engagement (categorized as free riders or social loafers in both formal and meaning revisions)
- 16 students were free riders in one category, but team players or leaders in the other category

  --> either played to their own strengths

  --> decreased efforts in one category after having contributed more than their share to the other category (thereby developing specific task roles after all)
- levels of engagement can be attributed to both intrinsic and extrinsic motivational factors

Pedagogical Implications

- most students contributed considerably in both meaning and formal revisions, but there were also a number of social loafers and free riders

- suggestions to hold students accountable:
  - assign roles for specific responsibilities
  - create weekly milestones
  - peer evaluations (with prior training)
  - task type (authenticity) of assignment is important to keep students engaged
  - develop assessment rubric together with students
  - let students choose their own groups (more cohesiveness)
  - discuss expectations before the project (correction of mistakes, deleting of content)

Conclusion and Future Research

○ Students revised their own as well as their group members' writing with regard to language-related edits, but made more content changes to their own writing

○ Students experienced wiki project as beneficial by sharing the work load, working in a time- and space-independent manner, creating an informative page, and enjoying the project

○ Future Research:

- to analyze learners' thoughts and decision making processes while they edit the page (which errors do they address/ not notice/ consciously ignore, etc.)

- does collaboration or cooperation lead to a better end product?