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1 "Google SketchUp 7 Animation Tutorial—Beginners," posted by "Requiem Dissidia," 2009.

As is the case with so many artifacts in the realm of DIY, online tutorials can be more instructive and effective at capturing the viewer's attention when their production quality is either extremely high or, as is more often the case, excruciatingly low. More personable and narrative than the classic user manual, video tutorials have become not just a medium through which

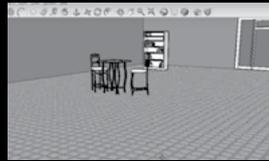
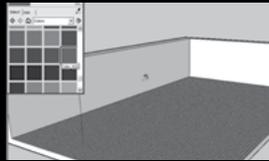
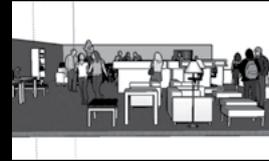
individuals learn to navigate software and operating system interfaces but also a meaningful way to enter, as producers and consumers, into the discourse of designed interactions and experiences. If one was to situate these videos somewhere along a graph in which audience attentiveness is a function of production value, we might find that they fit neatly into

an inverted bell curve. After watching perhaps hundreds of online instructional videos (some of our favorites have been collected in a publicly shared YouTube playlist),¹ we have found that their capacity to hold our attention is lowest exactly at the point where performance, production value, and apparent competence or coherence are merely average. Videos

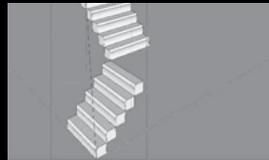
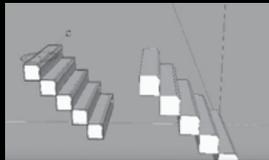
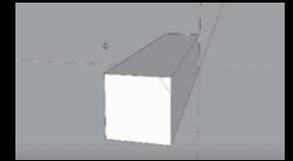
- 2 "Sketch UP—Library Space Demo," posted by "Brian Mathews," 2007.
- 3 "How to make a simple and good looking stair case in sketchup," posed by "mateo ardila," 2008.

- 4 "Google SketchUp 7 Animation Tutorial—Beginners," posted by "Requiem Dissidia," 2009.
- 5 "Google Sketchup—Easy To Use 3d Design Software," posted by "sydus," 2009.
- 6 "Sketchup Roof Tutorial," posted by "Super-Palarama," 2012.

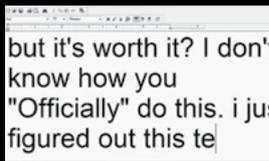
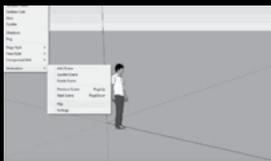
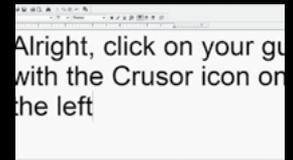
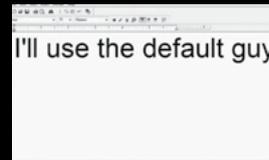
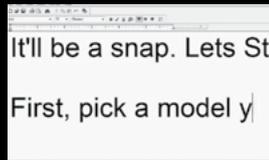
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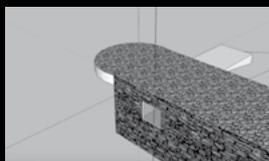
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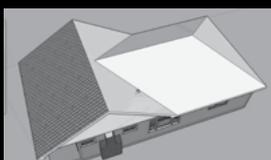
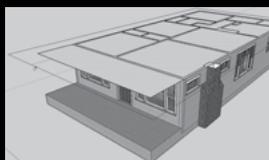
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generated for paid subscription providers like Lynda.com or open online courses such as those produced for Khan Academy or Coursera generally fall to the extreme right side on this graph: clearly professional with relatively seamless production, verified expertise, and a coherent pedagogical trajectory. Those to the extreme left can often be found where all loose things on the Internet will eventually land, on YouTube.

While the professional has been distinguished from the amateur by reductive definitions based on economics and certifications of expertise—essentially professionals are licensed in some way and compensated for their work, whereas amateurs are not—the online software tutorial might provide an opportunity to rethink the limits of this differentiation and its inadequacy for other models of production.² The screen-captured video tutorials that are uploaded to YouTube and shared on social media provide a sense of dominion over the scripted digital processes that users negotiate on a daily basis. They turn the menu-drop, mouse-click, drag and scroll, and hot-key shortcut into a set of performative gestures—expressions of autonomy charged with meaning and marked indelibly with human intention—and represent an increasingly important, and often overlooked, space for users to convey authority in the otherwise detached and impersonal expanse of the digital workspace.

As a means of communication largely dependent on the spoken word, digital records of screenshots, audio tracks, and webcam files, along with platforms of playback and dissemination, the instructional video (like any other form of quotation) is entangled in the context of its capture, delivery, and repetition. The online software tutorial relies on the familiarity and functional capacity of both performer and audience as it pertains to uses of commentary (speaking over) and instruction (speaking to). In the case of YouTube videos, they make use of the capabilities of online video platforms: the step-by-

step order of selections, tools, clicks, and drags can be reiterated through rewinding, complicated settings and instructions can be tediously copied while the video is paused, lengthy or mundane preambles can be skipped over, and further details can be requested in the comments.

The earliest examples of amateur software tutorials still found on YouTube date to around 2006, when the site had been in existence for only two years and was rapidly growing in popularity following its acquisition that year by Google. While many programs have accumulated attendant suites of user-made tutorial videos, Trimble's free 3-D modeling software, SketchUp (formerly owned by Google), provides a compellingly rich combination of qualities that bestows a particularly amateurish, uncontrolled, and improvised tone to the work produced and its accompanying tutorials. By comparison, tools in the Adobe Creative Suite, and most other video and photographic editing software, cater to a distinctly "prosumer" or "semiprofessional" mentality. The tutorial videos that accompany and affirm this posture tend to be predictably sober and task oriented. Distinctly by the book and thorough, they are strongly enamored with the "official" way of doing things and leave little room for improvisation and ad libbing.

On the other hand, SketchUp, with its stubborn insistence on ease of use, relatively low hardware requirements, and entry-level, community-oriented positioning, attracts a messier, more brazenly cavalier crowd to the task of instructional video making. "I don't know how you 'Officially' do this. i just figured out this technique so there it is," writes one video author in large on-screen captions.³ "And, I mean, like I said in other videos, I mean, this is how I do stuff and not everyone will agree. But, whatever, people do it differently," insists a narrator near the beginning of another video.⁴ This could be because SketchUp sets up, within its very existence, a fallacy around user participation and demonstrated expertise. A user would have to be crazy to think that her skyscraper design could be carried

through the building process with only a cursory understanding of the software. But then why would a 3-D design software program—oriented toward "the people who shape the physical world"⁵—exist at all if not to invite and encourage the pursuit of participatory fantasy and performative urges?

If SketchUp seems to straighten the learning curve while blurring the line between software expert and software amateur, perhaps we can trace these destabilizing gestures in part to a sense of instability produced within the digital workspace, namely the 3-D Warehouse tool palette. Situated in the Toolbar near View controls such as pan and zoom, and next to a small map icon that allows users to geo-locate their digital model, the 3-D Warehouse palette presents the opportunity to add any of roughly three million publicly produced and available models to the SketchUp workspace or to upload any user-generated creation to the sharing platform. Anything from an ice-cream sandwich and a desk lamp to an international airport is available for appropriation and editing, suggesting open-source authorship and oscillation between acts of making and taking—if only to afford the possibility of pulling the shared model apart and gaining a better understanding of the specific components, layers, and groups involved in its creation.

Indeed some of the best online tutorials concern extremely specific subject matter or surprisingly narrow objectives—the imposition of procedures and step-by-step methods toward an end that one might not expect. In the case of SketchUp one can find entire genres of short clips, for instance, on creating interior details such as spiral staircases and exterior components such as hip roofs. Thus these videos encourage partitioning and selectively calling upon discrete information and skill sets. Unlike previous methods of learning, such as attending workshops and following guidebooks and instruction manuals, the video tutorial can be broken down and compartmentalized into searchable and selectable portions

to make mastery appear attainable within a series of easily conveyed steps: from how to trace a floor plan and create walls to how to finish a roof—each method most likely being conveyed by a different video creator at different points in time in different parts of the world. In this manner the online instructional video series can suggest simultaneously a depth of understanding and a somewhat superficial ease of comprehension that otherwise would be irreconcilable. The software users and tutorial producers are able to claim command of complicated and advanced sets of knowledge without necessarily having a firm grasp of fundamentals such as how to work to scale or what each tool is called, in effect surpassing, confusing, and at times erasing the line between amateur and professional production and the criteria upon which these terms are predicated.

What's most compelling about online tutorial videos is the idea that, in their on-the-fly improvisational manner, they frequently oscillate from performative gestures to documents of an operational task. The best examples suggest the enactment of an inner monologue, almost like a Hollywood film director's commentary over software interface—a manifestation of the chatter that connects and mediates the threshold between our intentions as software users and the computational actions that our chosen systems carry out. These video tutors are, perhaps unknowingly, co-opting and appropriating the perceived command and authority possessed by the software being taught, and even its developers. Whether or not a given tutorial is less productive in an instructional sense, it effectively brings its creator into proximity with the people who created the software and the community of users who create with it. In her essay on the uses and implications of quotations both written and spoken, Marjorie Garber discusses the attachment or incorporation of authority that such external referencing can convey:

This practice works well when the figure being quoted is eminent, recognizable, and honored; in fact, all three attributes then seem to attach themselves, in a rather ghostly fashion, to the present speaker, who appears in the act of quoting to have virtually incorporated the predecessor and to speak from the vantage point of the ages, as if the speaker were a Russian doll who had somehow swallowed up these articulate authorities and was therefore able to ventriloquize them from within. When the figure being quoted is less eminent or reputable, however, the old-style quote-unquote is deployed, but with a lawyerly edge, casting doubt on the veracity of the person quoted or underscoring the suspicious significance of the utterance.⁶

This issue of greater or lesser eminence in relation to quotations suggests how the act of incorporating can impact a reading in opposing or unintended directions. Occasionally videos are prefaced by defensive captions imploring viewers to refrain from abusive or negative comments: "Please don't comment unless you have something productive, positive, or some USEFUL criticism," writes the user "Pizzscn" in an annotated note preceding one tutorial.⁷ Indeed comment threads following many online tutorials scrutinize the purported benefits or deficiencies of a particular software or working method: "Sketchup is not bad for visualization but finally you cant MAKE any project (maybe except really small one) without autocad," user "Lukaszandzel" writes in the comments of one tutorial; regarding another, "subpolarity" writes: "should've assigned it to a group, brah."^{8,9}

There is often a palpable sense of anxiety concerning how video makers position themselves in relation to the question of status, whether novice, amateur, hobbyist, or expert. YouTube refers to users who share videos simply as "creators."¹⁰ The issue of credentials and experience in terms of the subject matter is most often simply left unaddressed, with few excep-

tions.¹¹ Viewers today look toward other factors to carry the weight of credibility: Which user has the most followers? Which video has the most views, the most thumbs up, or the most positive comments? Sometimes a video that is titled with the most concise description of the technique being taught gains the most credibility.¹²

The online tutorial space is a comparatively intimate one, and not only because the viewer often experiences the tutor's home desktop computer along with the atmospheric domestic sounds captured by its microphone.¹³ And as a space cloaked in the anonymity of user names and logins, it allows freedom for sincere and informal admissions, like a digital confessional of amateur's remorse: "This is my second time using this ever," discloses narrator "sydus," referring to the software program that he is teaching in a 2009 tutorial on YouTube.¹⁴ Another narrator comments: "They have a really good tutorial that demonstrates...how to do this as well," exposing his insecurities as an instructor.¹⁵ The video titled "How to make a simple and good looking staircase in sketchup," by YouTube user "mateo ardilo," simply depicts the creation of the promised good looking staircase, accompanied by a soundtrack of Finnish death metal.¹⁶

These videos themselves manifest the soaring promises of software tools when placed in the hands of amateurs. To narrate a tutorial video is to cast oneself as the star of a DIY reality show about computational mastery, digital savvy, and millennial-age entrepreneurial self-assertion. Software programs such as iMovie, Photoshop, SketchUp, and Google Earth enable a stereotypically American brand of can-do spirit. Just as the selfie and photo-sharing platforms like Instagram and Snapchat have become conventional means to capture and broadcast one's identity and individuality online, the instructional video has become a common format for claiming a position as a maker, creator, and do-it-yourselfer. What sets the amateur tutorial apart from so many online formats is the infrequency

of self-reflection and criticality toward the broader system of its production and circulation. If most memes and other viral agents rely on nuanced media literacy to achieve a sense of levity and effectiveness in their communication, the tutorial video seems woefully encumbered by the apparent weight of its purpose and subject matter. In fact these videos are often amusing precisely because of the excessive seriousness of their tone and the pedantic affectation of their narrators. This tendency might reflect a broader cultural perception of teaching as demanding sobriety, focus, and objectivity. But perhaps this is what drives the interest in this genre toward the amateur and improvisational—qualities that call attention to the tension between methods and outcomes at play in the tutorial.

To view these videos is to witness the blind optimism of versatile and curious practitioners who are unburdened from the implications of the problems that they engage. The immutable amateurism of the user-made tutorial is an unsteady performance of control, expertise, and mastery. These video makers walk a thin line between sincerity and parody, often conveying a vague sense of uncertainty along with varying degrees of information, while suggesting that performing a tutorial and sharing it is a claim of mastery over a toolset. In the process they push instruction into a practice that engages a dedicated and voluntary audience relieved from the fixed constraints that typically monopolize access to expertise.

The broad spectrum of online instructional videos—from the concise, deliberate, and coherent to the esoteric, bizarre, and endearingly inept—points to the potential that online media platforms possess for flattening previously recognized distinctions between amateur and professional creative, productive, and pedagogical practices. So much of the content that viewers and software users encounter online today is dictated by the vagaries of search algorithms, keyword combinations, and determinations of PageRank, which often privilege categories such

as collectively derived *relevance*, *views*, *ratings*, and *recently uploaded* over credentials such as certification, seniority, and affiliations with governing bodies and professional institutions. They expand these discussions by reframing expertise as quantifiable, digestible, and communicable sets of discrete procedures and destabilizing the status of the expert in relation to experience and mastery.

Thus online tutorial videos, particularly those generated by self-taught amateurs, hobbyists, or dilettantes, suggest that foundational knowledge is no longer a prerequisite to expertise and that digital processes and software practices, once thought of as reserved only for high-functioning practitioners, might no longer be so strictly associated with an ordered accumulation of experience and familiarity. In doing so, they also call attention to the increasing importance of educational institutions in formalizing nonteachable skills while opening creative practices to broader groups of producers and participants.¹⁷

Um... Yeah. So that's it. Thanks for reading and let us know what you think in the comments section!

1 "Tutorials," YouTube playlist, posted by "Ian Besler," January 26, 2016, https://www.youtube.com/playlist?list=PLAv_YVkwqJRaFMKGyynXN-vqDIUXnWkPu.

2 Nick Salvato, "Out of Hand: YouTube Amateurs and Professionals," *TDR: The Drama Review* 53.3 (2009): 67–83, accessed February 7, 2015, [<http://www.jstor.org/stable/25599494>].

3 "Google SketchUp 7 Animation Tutorial-Beginners," YouTube video, 5:38. Posted by "Requiem Dissidia," June 23, 2009, https://www.youtube.com/watch?v=C_4LnXW-V0dA#t=05m16s.

4 "Sketchup Roof Tutorial," YouTube video, 19:16. Posted by "Super-Palamara," October 4, 2012, <https://www.youtube.com/watch?v=-cA060LkXps4>.

5 "The SketchUp Story," SketchUp, accessed February 7, 2015, <http://www.sketchup.com/about/sketchup-story>.

6 Marjorie Garber, "“” (Quotation Marks)," *Critical Inquiry* 25, no. 4 (1999): 658.

7 "How to make a house-Trimble Sketchup," YouTube video, 7:48. Posted by "Pizzscn," May 16, 2007, <https://www.youtube.com/watch?v=ITycE-25eV4c>.

8 "How to make a simple and good looking staircase in sketchup," YouTube video comment posted by "Lukaszandzel," 2011, https://www.youtube.com/watch?v=DJ-Wt-j2TOil&lc=ka-zY9fLE-S8U7DZzaytyJweium-LOtVjGyN-9K_OBkxk.

9 "How to make a second floor on Google Sketchup (efficient way)," YouTube video comment posted by "subpolarity," 2012,

https://www.youtube.com/watch?v=9kPaaj1_aMo&lc=KbMMuXxb-S9e71Z44IoRpehWfk-XBwoFovHl2EWZY-zjY.

10 "Creator Hub, YouTube for Creators," YouTube, <https://www.youtube.com/yt/creators>.

11 "Simple Roof Design in Sketchup," YouTube video, 52:41. Posted by "Drew Murphy," November 23, 2013, <https://www.youtube.com/watch?v=YOA1Xjd9eLO>.

12 Our gratitude goes to Andrew Kovacs for suggesting the relationship between view count, comments, search filtering, and the perceived credibility of the tutorial video.

13 "How to make a second floor on Google Sketchup (efficient way)," YouTube video, 1:34. Posted by "kepevipin9," February 13, 2010, https://www.youtube.com/watch?v=9kPaaj1_aMo.

14 "Google Sketchup—Easy To Use 3d Design Software," YouTube video, 9:48. Posted by "sydus," January 27, 2009, <https://www.youtube.com/watch?v=S-Zqdfi-f64A#t=09m23s>.

15 "Sketch UP - Library Space Demo," YouTube video, 4:18. Posted by "Brian Mathews," January 22, 2007, <https://www.youtube.com/watch?v=plExqUKq-Qk4#t=2m58s>.

16 "How to make a simple and good looking staircase in sketchup," YouTube video, 3:30. Posted by "mateo ardila," November 17, 2008, <https://www.youtube.com/watch?v=DJ-Wtj2TOil>.

17 Our gratitude goes to Michael Osman for feedback and suggestions toward our concluding points.